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Issue 75
June 00
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The Music Production Magazine

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Media with passion

# "Don't touch the cones!"

Keyboardist and producer with Depeche Mode, Alan Wilder left the group in 1995 to focus on his own Recoil project. Check out his new release, *Liquid*

Over the course of my years in the industry, I have reached some conclusions about how to achieve optimum results from a recording session – how the commercial studio can help to bring the very best out of an artist by creating the most conducive environment for that all-important creative process. Yes, we need MIDI, speakers, a mixing console. But what about those other requirements – the small but significant details so consistently overlooked by the budget-tightening studio manager...

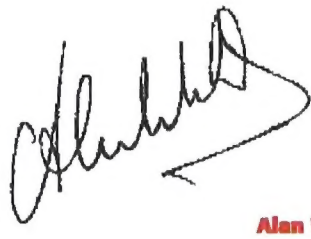
So, what can the studio do to help? Firstly, attempt to provide a parking scenario that doesn't necessitate producer downing tools in order to relocate his vehicle so the brewery truck next door can make its delivery. Once inside, why not welcome in that free but oh-so-often ignored commodity: natural daylight? It works wonders for the soul and minimises the inevitable onset of 'studio tan', where production team emerge from six-week session with the complexion of a freshly unearthed Pete Moss.

Secondly, try situating the FX units in positions which don't require the engineer to perform extraordinary acts of contortion (thus exposing builder's crack) for the sake of one more notch on the PCM70. Aside from eliminating hums, buzzes, crackles and creaks, scrap the heart attack-inducing hydraulic chairs which plummet unexpectedly in the middle of that crucial overdub, ditch those blinding low voltage interrogation spots, and under no circumstances offer up soiled pantyhose as pop shield. Finally, appreciate the benefits of a fully-effective air conditioning unit... finding oneself stripped to the Y-fronts, drenched and drooped over the console isn't exactly the ideal circumstance for getting that album delivered on schedule, especially when your young assistant hasn't yet discovered the joys of Right Guard.

Speaking of staff, the conscientious manager should employ personnel who don't balk when speaker covers are removed to expose those essential pulsating cones (we need to *see* the sub-bass frequencies), and remind them *never* to contemplate rearranging the musician's set-up (or tidying up his last-minute scribbled lyric). It is also crucial that the artist be allowed to mark his territory, so no objections should be made to visual entertainment in the form of posters hung to conceal depressing wood-chip decor, '70s artexing and Elton's gold discs. Educate your over-exuberant secretary to think twice before phoning the control room during that critical vocal drop-in, and insist your 'boys' are proficient in the production of a decent cup of char – they can never make enough! Take now-established but once plain old Mark Ellis, who, while serving his apprenticeship as tape op., acquired his famous nickname, 'Flood', due to over-eager tea-making skills. His aptly-named colleague, 'Drought', never saw the importance of this career-breaking move and hasn't been heard of since.

For relaxation, be sure to supply the full quota of Sky Sports channels, but go easy on *Sonic The Hedgehog*-type distractions by which young impressionable assistants can be lured away from their duties. To maintain the genial disposition of your client, invest in real coffee (plus the relevant tools for its preparation) and vitally, ensure there is 24 hour access to a well stocked 'fridge – or better still, an accommodating chef. (A stack of menus detailing the gastronomic delights of the neighbourhood's artery-clogging cuisine is *not* acceptable. Neither is a packet of sweaty tofu and a tub of Benecol as the "healthy option". )

So you see, technology *is* important, but only up to a point. Of course I want my 9600/ProTools 24 system to digitally lock via MTP-AV to the SSL and multitrack machine – that goes without saying – but I also need a little peace and pampering. Consequently, these days I run my own studio – and no grimy rock band is getting within 10 miles of it. Now, lets see what 15Hz does to those cones...



**Alan Wilder**

## about THE MiX

THE MiX is the essential accessory for the recording studio. Our equipment reviews, written by working producers and engineers, give you an impartial opinion of the latest studio and recording gear, and our interviews get to the heart of the current techniques and issues in the recording industry.

THE MiX cover-mounted CD helps you produce better music, by providing a varied monthly selection of collectable studio-quality samples provided by some of the top pro's in the business, demos of the latest software and hardware, and audio tutorials demonstrating contemporary recording techniques.

# contents

## reviews


**26 TLAudio Fat 1**
Budget compression made easy with TLA's stereo valve baby. *Sean Vincent* checks it out

**28 Roland VSR880**
A Roland VS in a rack – yes, it's finally happened. *Sean Vincent* gets to grips with this Modular Digital Multitrack

**32 AMS-Neve VX Rack**
*Jon Musgrave* heads for the top of the heap with this re-vamped rack-mount mixer/EQ/dynamics combo

**35 TC Works Spark 1.5**
The 2-track software editor gets a timely overhaul – and the once over from *Jim Warboy*

**38 JoeMeek VC3Q**
The updated budget recording channel gets the EQ treatment – and a new look. *Steve Evans* investigates

**40 SPL Channel One**
Could this comprehensive channel strip find its way into your studio? *Trevor Curwen* tells all

**44 Yamaha D24**
A step forward for professional 8-track recording? *Adam Fuest* rolls his sleeves up

**50 Sherman QMF**
*Adam Fuest* gets hands-on with the biggest, baddest, most extreme filter to grace Western civilisation

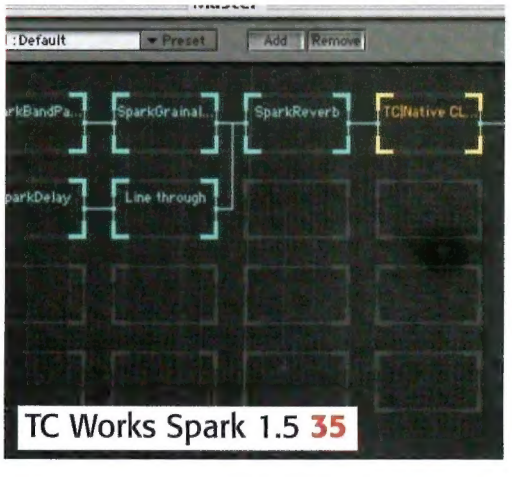

## features

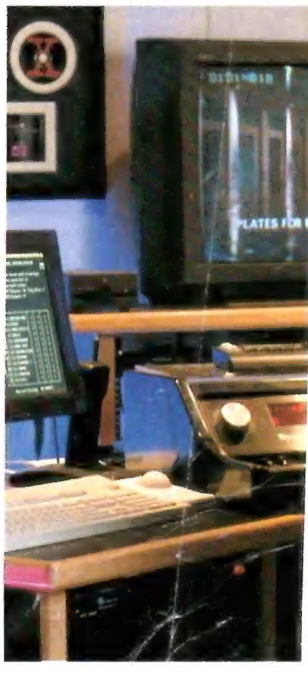

**70 Kojak**
From a *bijou* studio in the Paris suburbs comes some of the funkiest filtered antics to ever shake the dancefloor. *Oz Owen* meets the band

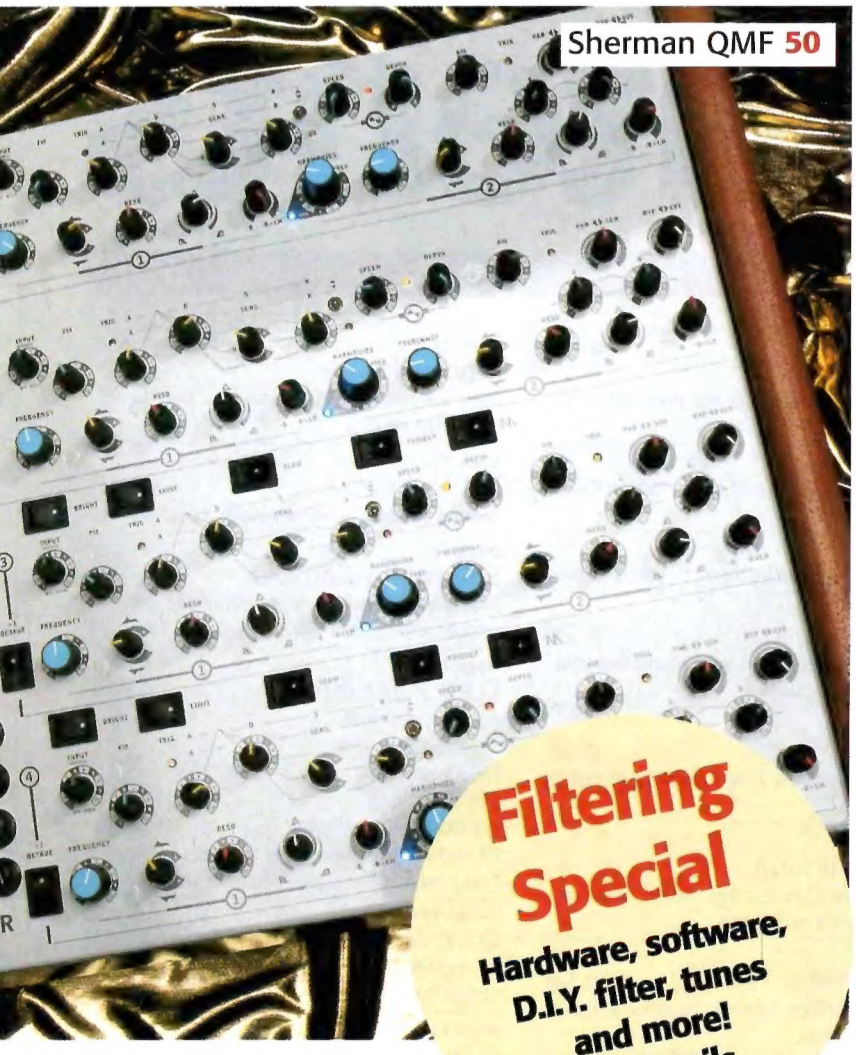
**78 Studio File**
*Chris Kempster* visits Abdala Studios in Havana and discovers a budding Cuban recording revolution

**84 Mark Snow**
We visit the Hollywood composer and producer behind *The X Files* soundtracks. By *Jonathan Miller*

**92 Perfect Monitor Placement**
We really *have* reached the end of our series this time, so sit back while *Chris Kempster* takes you on a precarious journey through surround sound







Sherman QMF **50**

**Filtering Special**

**Hardware, software, D.I.Y. filter, tunes and more! Full details on p. 49**

Mark Snow **84**

## regulars


**8 News**
If it's new and it's music production, it's here. All the new gear and industry gossip from a month in the 'biz

**20 Open Mic**
Have your say on all the burning music production issues of the day

**75 Album Reviews**
Our verdicts on the biggest and best new albums released this month

**48 Subscribe to The Mix**
Subscribe now to have your special limited edition issue of *The Mix* delivered to your door every month

**96 A&R Dept**
Send your demos to be rated or slated by our panel of industry experts – if you dare

**98 Readers' Ads**
In the market for used gear? Check out our free ads for second-hand bargains galore

AMS-Neve VX Rack **32**

TL Audio Fat 1 **26**

# cd contents

## software

track 1

### PC

**Arboretum Hyperprism DX 1.5.6** p.61
Demo of the cursor-controlled plug-in filters. High, low and band-pass types are featured.

**Opcode Fusion Filter** p.61
Try out the wacky effects from this filter with overdrive.

**Steinberg GRM Tools** p.61
Demo of Steinberg's set of four sound-shaping plug-ins.

**Steinberg Waldorf Dpole** p.60
Five filter types, overdrive, panning and delay to mess up your beats and basslines.

**Steinberg FreeFilter** p.60
Check out the software that allows you to apply the EQ curve of any track to your own mixes.

### MAC

**Steinberg GRM Tools** p.61
See PC software, above.

**Steinberg Waldorf Dpole** p.60
See PC software, above.

**Steinberg FreeFilter** p.60
See PC software, above.

**McDSP Filterbank** p.61
Filterbank bundle that can imitate any EQ or filter. Give the demo a whirl.

**TC Works Spark** p.35
Demo of TC's audio editing and processing software.

## demo of the month

track 2
**Hooked: 'Twenty Years From Now...'** p.96
Classy but sassy jazz/funk with that timeless quality.

## gear demos

tracks 3-4
**Sherman QMF** p.50
Sherman's own demo of the most extreme of filters:

track 3
Funky rhythm guitar gets the Sherman Quad Modular Filter treatment.

track 4
The Sherman does its thang to some drums.

track 5
**TL Audio Fat 1** p.26
The easy-to-use budget valve compressor is put through its paces.

track 7
**TC Works Spark** p.35
The newly updated 2-track editor gets put to the test.

tracks 8-13
**Filter Roundup**
Hear the filters on test this month mess up the sound of a drumloop.:

track 8
**Electrix Filter Factory** p.54
Sweeps, envelope follower, buzz/distortion FX, 4-pole action.

track 9
**Mutronics Mutator** p.54
Filter sweeps, envelope and gate, LFO, psychoacoustic stereo FX.

track 10
**MAM Warp 9** p.57
Filter sweeps, envelope and gate, distortion and sawtooth.

track 11
**Moogerfooger** p.59
Filter sweeps, 2-pole, 4-pole, filter overdriven with drive control.

track 12
**FAT Resinator** p.57
Various settings, sawtooth wave, other waves.

track 13
**Sherman Filterbank** p.55
First filter with one output, split mode with stereo output, then filters in serial mode.

track 14
**D.I.Y. Filter demo** p.65
(i) Low-pass filter
(ii) Band-pass filter
(iii) Hi-pass filter
(iv) Notch filter
(v) Notch filter w/noise
(vi) Low and hi-pass filters in series
(vii) Low and band-pass filters in series

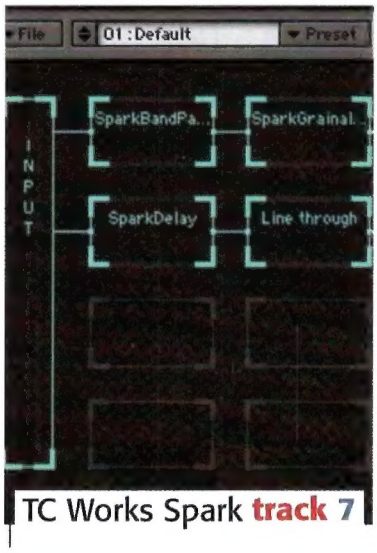
tracks 15-16
**D.I.Y. Modular Synth demo**
All sounds are created on the DIY synth from Orgon Systems.

track 15
(i) Oscillator, voltage-controlled distortion/VCA
(ii) Two oscillators, three VCAs, four envelopes and a filter
(iii) Three oscillators, four VCAs, five envelopes, two filters and one multi-connection

track 16
Three oscillators, four VCAs, five envelopes, two filters, a multi-connection and two LFOs

McDSP Filterbank **track 1**

Moogerfooger **track 11**




TC Works Spark **track 7**

DIY Filter **track 14**

## samples

**tracks 17-26**

### Kojak samples

Exclusive sounds, specially selected for *The Mix* readers by France's filter-mad funksters (see interview, p.70).

**track 17**
(i) Vinyl hum
(ii) Funky scratch
(iii) Funky vox
(iv) 4/4 with hat
(v) Bass knock

**track 18**
(i) Bass drum fill
(ii) Bass drum knock
(iii) Bass drum shuffle
(iv) Bass hum
(v) Bass hum w/dist.
(vi) Bass knock 2
(vii) Bass knock 3
(viii) Bass knock 4
(ix) Bass knock 6
(x) Bass knock 7

**track 19**
(i) Bass pulse 1
(ii) Bass pulse 2
(iii) Bass pulse 3
(iv) Bass pulse 4
(v) Bass pulse 5
(vi) Bass pulse 6
(vii) Bass pulse 7
(viii) Bass pulse 8
(ix) Bass pulse 9
(x) Bass pulse 10
(xi) Bass'n' horn

**track 20**
(i) Bongo beat
(ii) Bongo pop
(iii) Bouncing synth
(iv) Cymbal tap
(v) Cymbal tap 2
(vi) Cymbal tap 3
(vii) Cymbal tap 4
(viii) Cymbal tap 5
(ix) Cymbal tap 6
(x) Cymbal tap 7

**track 21**
(i) Drum 'n' bass fill
(ii) Dub lick
(iii) Echo vox
(iv) Filter bass
(v) Filter snare
(vi) Filter snare (short)
(vii) Filter snare 2
(viii) Filter snare 3

**track 22**
(i) Flange bass
(ii) Flange bass 2
(iii) Funky fill
(iv) Funky lick
(v) Gated cymbal
(vi) Gated hi-hat
(vii) Gated snare
(viii) Gated snare 2
(ix) Gated snare w/rev.
(x) Handclap
(xi) Handclap 2
(xii) Handclap 3

**track 23**
(i) Heavy 4/4 loop
(ii) Hi snare
(iii) Hi-pitch synth
(iv) Horn stab
(v) Horn stab 2
(vi) Intro swell
(vii) Open hat shudder
(viii) Ride fizz
(ix) Ride fizz 2

**track 24**
(i) Rotating synth
(ii) Scratch vox
(iii) Scratch vox 2
(iv) Scratch vox 3
(v) Scratch vox 4
(vi) Scratch'n'loop
(vii) Scratch'n'swoop

**track 25**
(i) Snare bounce
(ii) Snare reverb
(iii) Snare rim
(iv) Snare snap
(v) Snare w/rev
(vi) Snare w/dist
(vii) Snare w/reverb
(viii) Snare/hat groove
(ix) Snare/hat fizz
(x) Snareless

**track 26**
(i) Space scream
(ii) Space scream 2&3
(iii) Synth flange
(iv) Synth scream
(v) Synth stab
(vi) Synth stab 2
(vii) Thick snare
(viii) Triangle chime
(ix) Tribal roll
(x) Vox loop
(xi) Vox stab

### This month's Sound Factory samplists

**Kojak**
France's latest dancefloor favourites Kojak have been together for three years since a chance meeting, and their debut album *Crime in the City* has received universal acclaim since its release last autumn. Their diverse musical backgrounds make for an unusual blend of styles that stretch from Detroit techno to all things funky with a heavy soulful edge.

DJ Greg (Gregoire Galien) runs his own techno-inspired Nekko record label and had been working on house tracks when he was introduced to DJ Vas (Cyril Vaschetto) in his manager's record shop. Vas, a well-respected hip-hop producer at the time, brought with him many influences and also hooked the newly-formed duo up with singer and frontman Jayhem Racon who had been cutting his teeth in various acid jazz and soul bands in the French capital.

Now with one album on the shelves and a second due early in 2001, Kojak are equally respected for their studio antics and their live shows and can regularly be seen funking up the crowd at various high-profile venues both here and across Europe, opting to let rip rather than hide away behind racks of gear.

Netscape Online

Netscape Online: the free internet service in association with Future Publishing

track 1

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# news

If it's new and it's music production, it's here. All the gear, gossip and goings-on from a month in the biz...

## Giga gets bigga

Software sampler now available in four versions

The new GigaStudio comes with real-time FX, a wave editor and 24/96 support

Two new versions of GigaSampler, the PC-based software sampler that stores its samples directly onto hard disk, will shortly be in the shops. The new releases, GigaStudio 160 and GigaStudio 96, feature accelerated sampling power with latencies of only 3 to 8 milliseconds across all voices, and have also been expanded from the original format to include up to 160 sample voices and up to 64 MIDI channels. GigaStudio 160 can be run on a Pentium II 266 or faster, with 64Mb of RAM.

There are plenty of other enhancements as well, including real-time effects, a wave editor, QuickSound search and auditioning engine and support for 24-bit/96kHz hardware. And luckily for you, a new lower price structure has also been introduced, making the original GigaSampler and GigaSampler LE more affordable, and every Giga product is upgradeable to the next level so you can start with the LE and work your way up from there.

**Prices:**
**GigaStudio 160 £549**
**GigaStudio 96 £329**
**GigaSampler 64 £239**
**GigaSampler LE £79**
**More from: Et Cetera**
**Tel: 01706 228039**
**Web: www.etcetera.co.uk**

## I want my MP3!

New magazine launched this month

Unless you've been dwelling under a rock for the last year, you'll know that MP3 is the tiny, compressed file format that's sending shockwaves through the music industry. Available from 19 April, *MP3* magazine explains everything you need to know about MP3 – from the must-have software and hardware to the revolutionary prospects for an internet-based music industry. MP3 magazine's massive reviews section tests and rates the latest portable players and desktop speakers to boost your PC's sound, and recommends the must-see websites for downloading *gratis* tunes, while the cover CD is crammed with MP3 software and new tracks.

MP3 is brought to you by the makers of *Computer Music*, *Future Music* and *The Mix*. Issue one goes on sale April 19th, priced at £4.99.

## New mic from Meek

A figure-of-8 polar pattern is the dominant feature of the new JoeMeek JM478 condenser mic. Based on the JM47 Meekrophone, the new mic also features that model's cardioid pattern and 1" gold diaphragm capsule, but adds an all-new preamp and power circuitry, allowing phantom powering of the two sides of the capsule individually. This produces a stable figure-of-8 polar pattern.

Simultaneously released is the Super TrakPak, a combination of the JM478, JM47 and VC7 dual-channel preamp. This package has everything needed for making M&S stereo recordings, with the VC7 able to automatically de-matrix the M&S signal supplied by the two mics to give natural-sounding stereo.

**Prices: JM478: £399**
**Super TrakPak: £1,299**
**More from: JoeMeek**
**Tel: 01626 333948**
**Web: www. joemeek-uk.com**

# Small studio gets Phatter

After the runaway success of last summer's 'Turn Around', feelgood house supremos Phats & Small have spent the early part of the century kitting out their new studio in preparation for work on the follow-up to their debut album *Now Phats What I Small Music*. "I find it very exciting to spend my money on studio kit," Jason 'Phats' told *TM*. The new set-up will be based around Logic Audio Platinum running on a Mac G3, with outboard in the shape of Focusrite's Green Quad Compressor, Voicemaster, Platinum Compounder and ISA 430 Producer Pack, TLA's Classic EQ and Valve Compressor, Novation's Super BassStation and Supernova, and a pair of Blueroom Minipod monitors ("They look cool, and you can never have too many different speaker set-ups to refer to") to sit alongside the inevitable NS10s.

But despite the recent shopping spree, "it's not all about having loads of equipment," says Jason, who takes care of the Brighton-based duo's programming and engineering. "You can go overboard in terms of production and try to put too much into the tracks. 'Turn Around' was so simplistic. We recorded it in my living room on an Atari running Cubase. The programming was all very minimal, and we put the whole thing together in 12 hours."

The boys are working on their second album for a late summer release

12 *hours*? "We've always worked that fast. When you are the programmer and engineer it's good to be able to work at the speed with which people have ideas. Some of our tracks have been arranged while the song is playing," he laughs.

"The instrumental samples were taken from an old Luther Vandross song and the vocal was taken from an old Toney Lee record called 'Reach Up', which I had lying around on an old acapella album I'd had for years. I'd been saving it for that special moment, and that special moment was 'Turn Around'." Look out for the new Phats & Small album sometime around September this year.

Phats (L) and Small relax in their new Brighton studio after an exhausting day of shopping...

## in brief

### 001 plug-ins

RTAS plug-ins for Digidesign 001 are now available from many leading companies, with more expected very soon. Unity Audio have announced the availability of plug-ins including GRM Tools, McDSP Compressorbank and Filterbank, Arboretum RayGun, and Antares Auto-Tune and Mic Modeler.

**More from: Unity Audio**

**Tel: 01440 785843**

**Web: www.unityaudio.co.uk**

*Future Music* comes with a bonus CD this month

### Future Music

The new issue of *Future Music* is HUGE, with its extra-big cover and its second CD full of free software that can turn your computer into a virtual studio. There's also the world's first review of the new Roland Groovebox, interviews with Chicane, LHB and Recoil, a group test of MiniDisc players and the essential guide to programming analogue synths. You'd be an April fool to miss it!

### Take the Rocky Road

Rocky Road Distribution have been appointed as agents for the range of products from the New York-based Tech 21 company. These include the Sansamp line of valve amplifier emulators, which are still the distortion tools of choice for many producers and engineers.

**More from: Rocky Road Distribution**

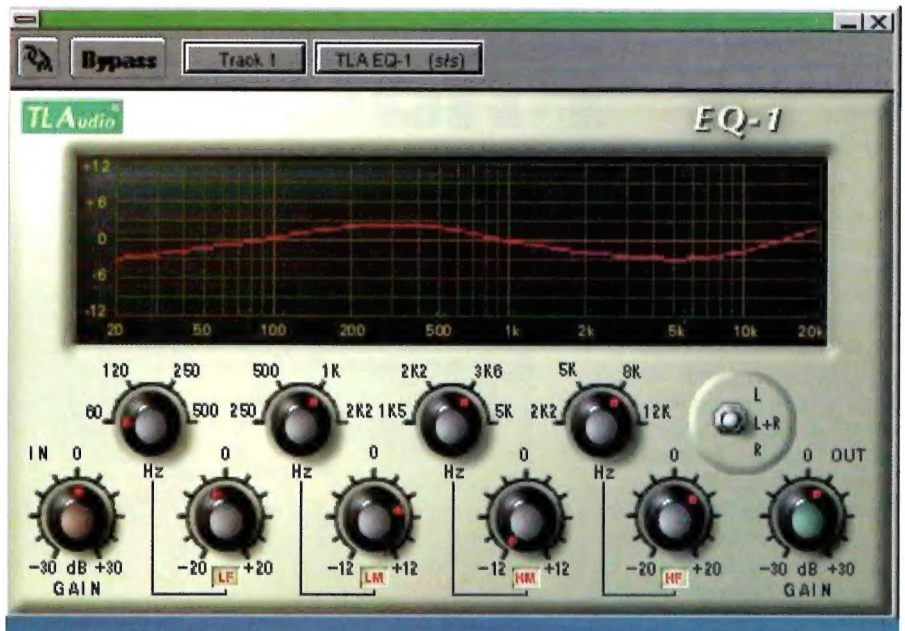
**Tel: 01494 535333**

**email: sales@rocky-road.demon.co.uk**

# Plug-in corner

## Sean Vincent's monthly round-up of the latest plug-ins

First up this month is the eagerly-awaited software version of TLAudio's EQ-1. The plug-in version (£149) gives you the same controls as on the hardware original, but with the added bonus of being able to store your favourite curves. It looks somewhat different to the hardware version, but the sound is as close as you're gonna get. TLAudio's own design team were "stunned" by the likeness to the sound of the EQ-1. For those of you not familiar with the original, its features include 2-channel, 4-band EQ with four selectable frequencies per band. These range from 60Hz to 20Hz and are arranged so that the hi and lo bands have a fixed slope, while the two mid bands have a fixed Q setting. The left/right switch lets you use the plug-in as two separate mono channels or as one stereo channel. The EQ-1 is available imminently from Steinberg in VST and DirectX format. For more info. phone Arbiter (0208 970 1909) or check the website: www.arbitergroup.com.

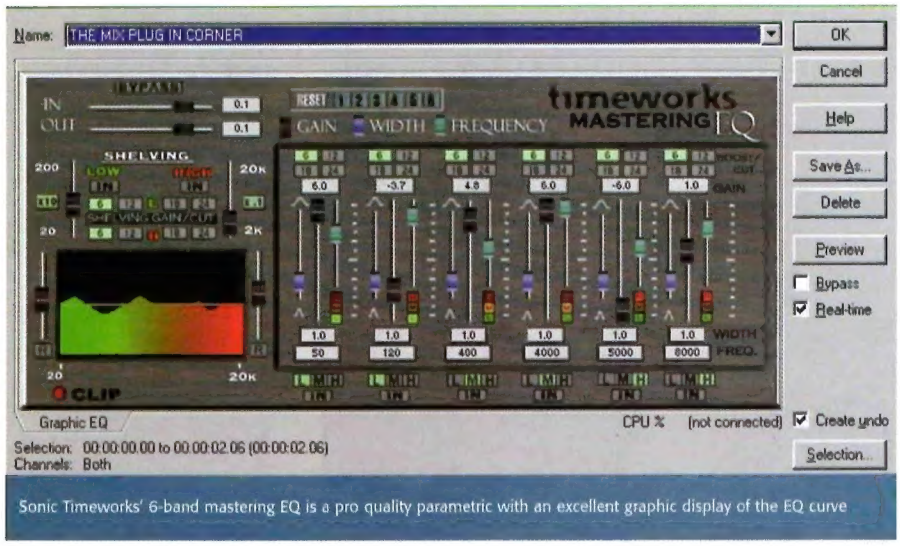



The eagerly-awaited software version of TLAudio's EQ-1: even the boys at TLA were 'stunned' when they heard it

Next up are a couple of excellent plug-ins from Sonic Timeworks. CompressorX ($179) is a valve-style compressor with a lovely graphic interface. Giving you the usual control over threshold, ratio, knee, attack and release, CompressorX really is excellent. There's an auto function for the attack and release if required, and a 'classic'-style VU meter for keeping a check on either gain reduction or output levels. There's also a 'wall' function for hard limiting. This compressor proved to work really well on most sources, but we found it especially good on drums. It's available online: www.sonictimeworks.com

Also from Sonic Timeworks is the Mastering EQ ($249). This is a professional-quality stereo parametric equalizer. Using six bands of fully-parametric EQ with an excellent graphic display of the EQ curve, you can fine-tune your stereo masters to perfection. There's a complete set of configurable parameters for selecting frequency, Q (bell width), and gain over all six bands, giving the user complete control over the sound. There are also hi and lo-pass filters over the stereo input. This could form part of a mastering set-up for desktop studios. Again, this is available at: www.sonictimeworks.com

Good news for anyone into mixing in 5.1 surround sound: Kind of Loud Technologies are about to release Realverb 5.1 (£1,232) . This is a new groundbreaking multichannel reverb plug-in for Pro Tools users and it sounds like it's going to be an impressive bit of software. You can 'virtually' construct the room you wish to emulate using two palettes of room shapes and sizes as well as two menus of construction materials, which can be blended as required. Complex algorithms allow you to morph between rooms and settings with no audible 'zipper' effect. The ability to morph between your own presets makes this a must for all TV and film audio post-production studios. Stereo versions of Realverb 5.1 will also be available for Digidesign's TDM (£587) and RTAS (£258) platforms as well as Mark of the Unicorn's MAS specifications.




Sonic Timeworks' 6-band mastering EQ is a pro quality parametric with an excellent graphic display of the EQ curve

Waves have announced their commitment to the Digi 001 system. The whole Waves range will be available for Digi 001 users with the release of Waveshell-RTAS providing real-time processing within Digidesign's AS format. Now all of the Waves pro audio processors including the acclaimed L1 Ultramaximizer, are available to users of the new Pro Tools 5.0 LE-based systems. The WaveShell-RTAS is available now. It is included in all Waves bundles and also offered as a $150 online upgrade to existing Waves customers. More from the website at www.waves.com.

One last thing this month, which may be of interest to 'Winamp' users: there's a new plug-in available that uses 'impulse responses' to simulate the reverb of different environments. It's called RealReverb Convolution, it's freeware and downloadable from: www.gourmett.com.ar. You can also download loads of different environment presets.

# SPL surround sound

Area 5.1 from SPL is a new miking and mixing system for making 5.1 recordings with existing microphones. The system includes five high-precision mic preamps with padding, phase reverse and phantom power, as well as a stereo downmix section enabling a user to record both 5.1 and stereo at the same time. A specialist mic stand is also available to hold an array of five mics.

Also new from SPL is a 5-band parametric stereo EQ based n the proportional Q design of their Qure filters. The unit is equipped with three fully parametric bands, an 'air' band EQ and a 3D enhancer.

**Prices:** **TBA**
**More from:** **Pure Distribution**
**Tel:** **0171 624 6000**
**Web:** **www.spl-electronics.com**

# The Omega, man

## New analogue synths launched

A massive new rack-mounted analogue synth from Studio Electronics is currently available from Turnkey. Featuring eight voices, each with two oscillators, the Omega features Oberheim and Moog filters (with the capability of adding ARP2600 and TB303) with three LFOs and three envelopes, 33 knobs and 35 switches in all. A cut-down version is also available in the form of the Omega 2 two-voice model.

Also new from Turnkey is the latest Oberheim OBI Twelve, a 12-note, 4-part analogue modelling synth with a 4-octave keyboard.

**Prices:**
**Omega 8 £3,999**
**Omega 2 £1,399**
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**More from:** **Turnkey**
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# PC news

Adam Crute checks out the latest hot hardware

## Midiman goodies

Prone, as they are, to producing all sorts of handy peripherals, the good people at Midiman have been beavering away on all sorts of... errr... handy peripherals. On the MIDI side of things there's the rather descriptively-entitled USB MIDIsport 1x1 (£55). Connecting to the USB port of a Mac or PC, this little box, finished in the now obligatory clear plastic style, provides a quick n' easy one-in/one-out (apparently a world first for a USB MIDI interface). Quite where the sport side of things comes into it they're not saying. At the other end of the scale comes the USB MIDISport 8x8 (£299). The more astute amongst you will have already gathered that this is an 8-in/8-out affair. A standard 19" rack format has been adopted in favour of the cute little see-throughness of the 1x1, and it can connect via both USB and serial.

Your passport to a world of digital interconnectedness: M-Audio's new MIDI thru box

M-Audio, the side of Midiman that has nothing to do with MIDI, have also got a couple of tasty little morsels to offer. The CT 14 and OT 14 (£89 and £99 respectively) are a pair of digital thru boxes, the C standing for coaxial and the O for optical. Both have a single digital input that is cloned to each of the four outputs.

Of even more interest is the new M-Audio Lagoon PCI card for PC (£349). This is basically an ADAT optical I/O card, supporting, and converting between, both ADAT and S/PDIF optical formats. It can manage a bit depth of up to 24-bit and a sample rate of up to 96kHz. But as if that wasn't enough, they have also thrown in an ADAT controller out port, which can also be used as a MIDI port. To top off that lot, the card also incorporates a built in virtua analogue synth.

## Get creative

These days it's not a very difficult task to run two monitors off one PC – the advantage of an extra screen's-worth of workspace is easy to see. But the problem is that most of the latest video hardware is only available on AGP type cards. Creative have sorted the problem out though, with the imminent release of their new Riva TNT2 Vanta PCI graphics card. Utilising N'videa's much acclaimed TNT2 graphics technology, and packing 32Mb of graphics RAM, this card will also be perfect for those of us whose ageing PCs don't have an AGP slot.

## New from Terratec

Terratec Electronic used this year's CeBit show in Hanover, Germany, to unveil a few new products. The SoundSystem DMX Xfire 1024 (read 'crossfire' – bless) is a 4-channel 3D audio accelerator designed to strike a balance between performance and price. The card features digital ins and outs, 8Mb of sample memory to allow you to use the card as a 1024-voice synthesizer and a pair of CD audio connectors allowing the connection of two CD devices. If you're the type who has a penchant for the odd bit of gaming, the DMX Xfire 1024 will lend itself perfectly to your cyber-slaying as it supports all of the major 3D audio standards: EAX 1 & 2 and A3D 1.

Along with the Xfire, XeBit also saw the launch of Terratec's new DAB (Digital Audio Broadcast) card, the MP3 OnAir. The card can record any DAB station that you desire, converting the music to MP3 format on-the-fly if required, while allowing you to channel-hop through other DAB stations, leaving the ongoing recording unaffected. And if you were to record the radio in MP3 format, a modest 2GB hard drive would provide one-and-a-half day's worth of recording time. With DAB in addition to the radio program, other information can also be transmitted in text and picture form, which the MP3 OnAir can also display. And as if that wasn't enough, the card also has the functionality of a high-end PCI 3D sound card with a 64-voice wavetable and a gameport.

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Pictured: Record Plant Remote Owner and TEC Award winning Remote Recording Engineer Kooster McAllister.

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Pictured: Virgin Studios Director Ian Davidson.

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FIRST WE LISTEN

# Why use Digital Performer's effects automation?

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1. **Beat/tempo-based automation.**
   Automate plug-in effects in perfect time with your music, from filter sweeps that land on downbeats to multitap delays that echo in triplet 8ths. Your beat-based effects always stay in rhythm, even through meter and tempo changes. You'll never waste time wondering things like, "how many milliseconds is a 16th note at 126 bpm, anyway?" Rhythmic effects are now just a few clicks away.

2. **Sample-accurate ramp automation.**
   Digital Performer's plug-in automation isn't a kludge — it calculates true ramps in 32-bit floating point glory. And it's sample-accurate, not quantized to buffer boundaries, so you'll never hear weird artifacts or zipper noise in your audio. Instead, your moves will be as smooth as silk...

3. **Discrete events and stair-step automation.**
   Some effect changes are discrete events, like changing an LFO from a sine wave to a square wave. Others require a stair-step approach. Digital Performer has all three: ramps, events and steps.

4. **Graphic editing.**
   View all automation data directly on the audio waveform. Work fast with descriptive icons and convenient control points.

5. **View all automation data at one time.**
   Clearly view all automation data at one time. Easily control the interaction of multiple FX parameters.

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   Digital Performer's automation data is always displayed in the correct unit (like milliseconds or percent), instead of arbitrary number ranges like other programs. (0-127, yipee!)

7. **Five advanced automation modes.**
   Tweak your heart out with advanced automation modes like Touch, Latch, Overwrite, Trim Touch and Trim Latch. Want to bypass the effect? You can automate that, too.

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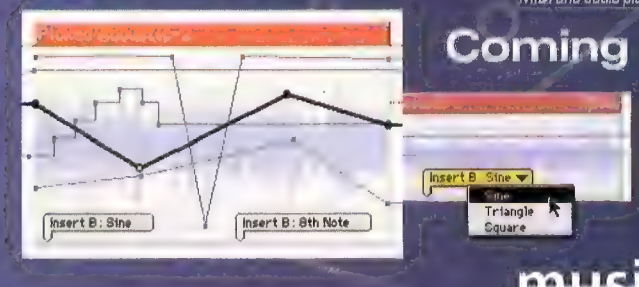


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## INDUSTRY NEWS

# Mike Collins reports on a month in the biz...

If you were at the MPG Pop Producer's SIG held in February this year, you would have spotted MPG Chairman Nicky Graham presenting Steve Mac with an award on behalf of the Music Producers Guild as 'Pop Producer of the Year - 1999'. I arrived just in time to hear Nicky saying "...with hits like 'If Ya Getting Down' and 'Till The Time is Through' from Five to 'I Love The Way You Love Me', 'You Needed Me' and 'When The Going Gets Tough' for Ireland's Boyzone, including Ronan's solo venture 'When You Say Nothing At All' and tracks on two Boyzone albums 'Where We Belong' and 'By Request'."

Could these all be Steve Mac's hits? Well, it seems that's not all this boy has been up to. According to Nicky, "Steve was instrumental in the success of multi-platinum Westlife, who have had four No.1's in 1999, including 'Swear It Again', which, incidentally, he co-wrote, and by some wonderful coincidence is the most-played single in America this week. So, the moral of this story seems to be "Join the MPG, produce lots of hits - and you might win the award next year!"

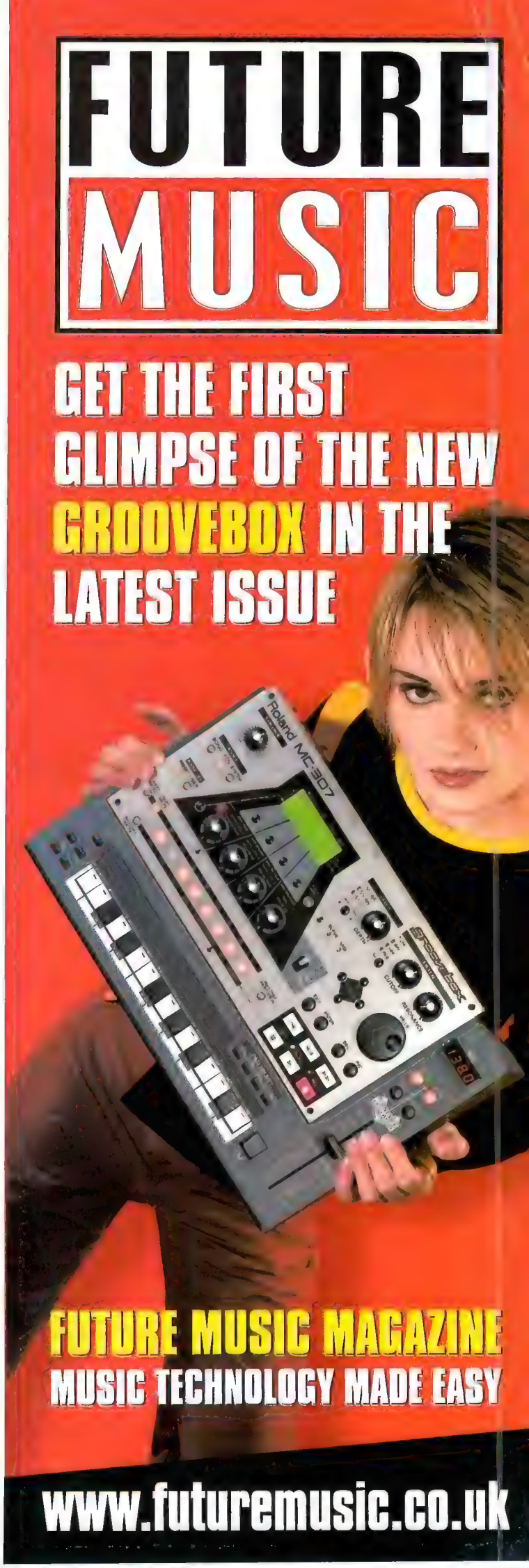
Now if you want to get started approaching A&R departments yourself, you should look out for the forthcoming MPG A&R forum, which is scheduled for early July this year. Here you will be able to hear top A& Rmen 'telling it like it is' - and you might even learn a thing or two about how to approach them more effectively!

Now here's a cautionary tale about music technology. I just got through helping a couple of producers put together home studios using Cubase VST with the new Apple G4 computers. The first surprise came when I tried installing Cubase VST. This previously required the use of a copy-protect key, which comes on a floppy disk. But the G4s don't have floppy drives. Cubase will run in 'unauthorised' mode for 14 days after installation and an alternative authorisation scheme is provided using a challenge/response system. But I couldn't even get this far at first! Every time I tried to run Cubase the computer crashed. It turns out that to get Cubase to work on a G4 you need to download a software patch called, somewhat misleadingly, the Floppy Enabler. Hmmn!

Steinberg's website recommends buying an Imation Superdisk USB-compatible floppy drive, which is supposed to work with the copy-protect disks. But when this arrived it wouldn't work - so I called Steinberg to ask why. It turns out that the newer 'ice' coloured Imation drives won't work with copy-protect disks! Grrr!

The next problem was the MotU Midi Express USB interface. For this you need to install MotU's FreeMIDI software, while to use Cubase effectively with other MIDI software you need to install Opcode's OMS software. The problem here is that OMS version 2.3.8 gets confused when MotU's FreeMIDI is installed first and won't recognise the MIDI interface unless you install OMS first and FreeMIDI afterwards. Then I discovered that MotU's USB MIDI interfaces won't work properly on the G4s with Cubase or Logic - a situation which MotU are endeavouring to resolve at present. You get random crashes when using the QWERTY keyboard to issue sequencer commands. Not good!

Apple's PR person David Millar admitted "Yes, there have been problems during this transitional period, but we are very keen to solve these. There were changes with OS9, but the API is described in advance to developers, so they should have had time to respond. While we do what we can to ensure backward compatibility of software and hardware, third-party developers bear responsibility as well. It is a two-way street. And developers have been aware since the iMac appeared that the floppy disk is dying. Don't forget – we have to produce a product that appeals to the vast range of customers." The question is, does all this hassle appeal to you?

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**Putting a music-making computer together might not cost as much as you think. We reveal the best hardware and software for the thriftier tunesmith – and tell you where to get it...**

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**Does a hardware sound source still have a place in the computer musician's sonic arsenal? We take a look at a selection of keyboards to find out...**

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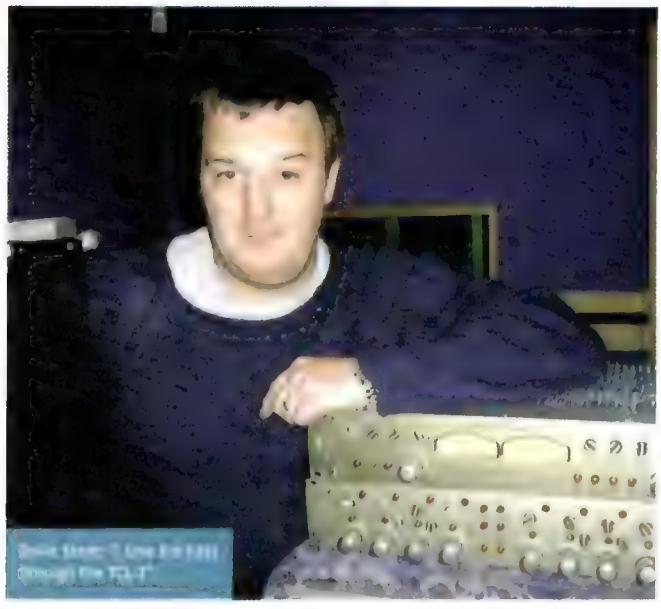
# New JBL monitors

JBL's latest addition to their LSR monitor series is the LSR 25P monitoring system. Expressly designed for multimedia and digital audio workstation users, the 25P is intended to provide the same high-performance monitoring in smaller environments as the LSR32 and LSR28P do in larger production environments. The 25Ps offer frequency response from 60Hz to 20kHz with ±2dB variance.

**Price:** TBA
**More from:** Arbiter
**Tel:** 0181 970 1909
**Web:** www.jblpro.com

# New millennium, new Millennia



Producer of Oasis' No.1 album *Standing on the Shoulder of Giants*, Mark 'Spike' Stent, has installed a Millennia Media NSEQ-2 EQ unit and TCL-2 compressor in his own studio facility, located at the world-famous Olympic in Barnes. Commenting on the pair, Mark stated "They're in my rack and I use them all the time. I love the bass through the TCL-2". As well as for the Manc rockers, the units have also been used on recordings by The Spice Girls and Madonna. Look out for a forthcoming review in *The Mix*.

**More from:** The UK Office
**Tel:** 01442 870103
**Web:** www.theukoffice.com

# Dolby revolutionise headphone technology

Dolby headphone is a new signal processing technology that works with conventional stereo headphones to recreate the sound of a five-speaker surround sound system playing multichannel material in a real listening room.

Traditional headphones feed sound directly to your eardrums without spatial cues, producing an unnaturally flat image. Dolby Headphone, on the other hand, electronically imparts to each audio channel (two on stereo programmes, up to five on surround sound) the unique sonic signature of a corresponding speaker properly placed in a carefully-defined acoustic environment. These signatures are combined by the processor into two composite channels that deliver, via conventional stereo headphones, the sum of the direct and reflected sounds from each virtual speaker in the virtual room.

We checked out Dolby Headphone at the recent AES show in Paris, and you know what? It sounds pretty cool!

**More from: Dolby Labs**
**Tel: 01793 842100**
**Web: www.dolby.com**

# Baker cooks the Marantz way

Arthur Baker has been using the Marantz CDR640 for mastering in the studio. Commenting on his choice, the legendary producer stated, "I've been using Marantz CDRs for several years now and I've always liked their great sonic quality and general product reliability. The new CDR640 is an excellent machine with a lot of pro features. The remote control also makes it ideal for using in the studio without having to shuffle back and forward to a rack."

**More from: Marantz Professional**
**Tel: 01753 686080**
**Web: www.marantz.com**

Arthur Baker, production legend, with his CDR640

# in brief

### Software session drummer

Steinberg claim that their new software release for Cubase VST puts the user in virtual control of a real session drummer who will play exactly to order. VST Drum Sessions are real drum recordings that have been processed using ReCycle and are presented in REX format for Cubase VST, where they can be rearranged, quantized, EQ'd, and tempo-shifted. Each recording has been preserved in its original 8-track format enabling each instrument to be tweaked individually. Currently-available titles in the series include *Straight Rock*, *Rhythm & Blues* and *Pop & Soul*.

**More from: Arbiter**
**Tel: 020 8970 1909**
**Web: www.steinberguk.com**

### Computer Music

*Computer Music*'s 20th issue features details on how you can make music on a budget, and explores the basic principles of mixing. If you're after a new synth, then check out their round-up, and oh: they're also giving away 1,000 guitar and bass samples on the cover CD. Bang on!

### Triton 2.0 OS

Korg have released version 2.0 software for their Triton workstation. Users will enjoy improvements to the user interface, sequencer and sampler, including Time-slice, Time-stretch and Crossfade functions. OS 2.0 should be available by the time you read this and will be free of charge to all Triton owners from the Korg website: www.korg.co.uk

### 24-bits on CD

Following on from their CD-RW5000 CD recorder, Tascam have introduced the CD-RW700, featuring high-resolution 24-bit A-D/D-A converters, which, with the aid of onboard dithering, enhances the performance of the 16-bit CD-R medium.

**Price: £499**
**More from: Teac UK Ltd**
**Tel: 01923 819630**
**Web: www.tascam.co.uk**

# Digi 001 bug fixed

Astute users of Digi 001 may have noted a subtle but serious software bug in Pro Tools LE 5.0 that affects mono-compatibility, causing a marked reduction in high-frequency content between the stereo and mono signal – this is due to a one-sample delay between the left and right analogue outputs in stereo mode. When notified of the problem, Digidesign – professionals that they are – responded quickly and had a fix posted for download from their website within a week.

Version 5.0cs3 is available from the website as an interim release for both Pro Tools 5.0 TDM and Pro Tools 5.0 LE users and fixes two bugs.

Firstly, with Digi 001 systems, MTC is not generated from the MIDI output, analogue inputs 2, 4, 6 and 8 are delayed by one sample and analogue outputs 1, 3, 5 and 7 are delayed by one sample.

Secondly, with TDM systems running DSP Farm 1 cards certain plug-ins (e.g. D-Verb) are problematic. Users may encounter audio dropouts or no wet signal when loaded on the first chip of a DSP Farm 1 card, affecting units with serial numbers below FF09226.

Digidesign say that if you are not experiencing any of these symptoms with your current Pro Tools or 001 system you should continue to use DAE/DSI 5.0.

The download is available from: www.digidesign.com/serv/ftpmaps/daedsi.html.

# Doing it by the Bukem

## Drum 'n' bass front-runner LTJ Bukem talks to *The Mix* about his first album, *Journey Inwards*...

**So how did you set about getting your new album down?**

I started writing out what I wanted to do for the album about a year ago, then scrapped the bit of paper I was writing on. You can't plan it out, you have to go with what you feel – I just thought I'd work my heart out for the best part of last year and see what came up. And it came out like a past, present and future thing, there were so many styles on there – it says so much about my history and where I want to go.

**So the last 12 months must have been pretty tough?**

Yeah, what with Good Looking being an independent label. I'm not signed to any majors so I can't take just off for 12 months and make an album – I've still got tours, concepts and albums to create, launch and release, artists to build up and A&R to do. It's been a challenge, but an enjoyable one.

**So which bits of the album are down to you?**

I did all the writing and arranging, but mixing music is one thing I've never been that confident doing. I can do all the writing and programming, but not the mixing. I could probably get there, but what others can do in a few hours would take me a couple of weeks to do!

**What sort of kit features most on the album?**

I'm using Apple Macs, Logic Audio and an Akai S3200 sampler as well as some basic keyboard stuff – a Z1, a JV2080/1080, a Yamaha O2R desk, and a few other bits.

**So you haven't ventured down the Pro Tools road?**

No, maybe I will, but for me it was like, 'Am I going to sit for a year writing technical things or am I going to write an album?' You can get lost in the technical side, spend so much money buying gear and not actually make a tune. I thought, 'No, lets concentrate on the album and in a couple of years update stuff and venture a bit more deeply into the technical side of things.

**Any advice for people writing an album?**

Keep it real. I know it sounds simple, but in this day and age people make music for A&R men and the dance floors, not actually for what they believe in. I think that puts music back as opposed to progressing forward. So my message is keep it real, and make exactly what you feel.

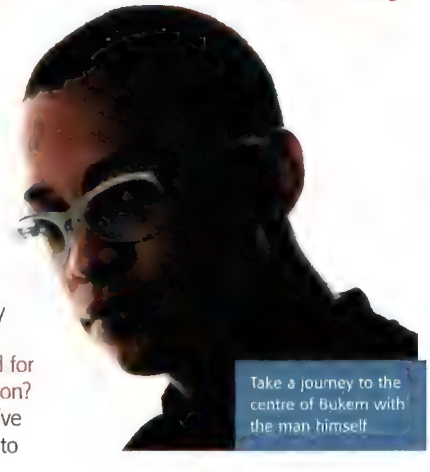
**So what does the future hold for The Good Looking Organisation?**

I think we've just started. We've been going ten years but up to now it's been a compilation-based label focusing mainly on drum'n'bass. We'd like to progress through the next ten years by including all different styles – basically have a different format for every genre of music so that every artist I find won't feel restricted in what they make. Now I've got my album done, I think we'll move into a lot of artist-based albums as supposed to compilations.

**So, how about a final plug for The Good Looking Organisation**

Yeah! Check out the website – www.glo.uk.com for information on where we're playing and what we're up to – and keep it real!

**Bukem's *Journey Inwards* album is out now on Good Looking**



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## recording in progress

Young R'n'B soulstress

Metropolis is currently home to Richard Ashcroft, who is working on his imminent album with Verve producer Chris Potter at the helm.

M-People chanteuse Heather Small is with Phil Bodger at Metropolis working on her first solo single.

House/trance act Miro are at Dominique Brethes' Wolf Studios working on album mixes.

Placebo are working on their newest opus with Paul Corkett at Olympic studios.

'80s pop and soul icon Roachford is busy working on new material at Metropolis Studios with Andy Wright behind the desk.

is "doing it all over" Metropolis, recording his latest single with Mark Hill producing.

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## Going for green

I'm quite surprised about my letter being chosen for *Letter of the Month* (issue 74) – I really didn't expect that. Because in the inner circle of audio engineering in Greece (and the rest of the world, I suppose) being honest and real is a disaster for the professionals. To make it more clear, Greek music is divided in two factions. In the first (to which I think I belong), you have to be true to yourself and work with people that play music from the heart to express themselves. On the other side, there are people who work with one idea in mind: money. And we all know what kind of recordings are being made without heart or soul. Finally, I hope I didn't tire you with my long letter, and thank you very much for the prize.

**Dimitris, by email**

*Right, all you guilty parties! We want to hear true confessions from some of you musicians and producers out there who are making music "without heart or soul", as Dimitris calls it. Anyone want to 'fess up? Go on, tell us about how you're laughing all the way to the bank. Then again, as a world-famous session bassist once commented when quizzed on the subject of selling out: "You always get committed to, and fond of, anything or anyone you're working with for quite a long time. You find yourself defending stuff that, if you weren't involved in it, you'd know it's quite patently rubbish."*

*But at the end of the day, all the music we hear is commercial – we're only hearing it because someone, somewhere, thought they could make money out of it. After that, it just comes down to a question of taste...*

**Andrea Robinson**

## Shirley some mistake

In your new releases' *Milestones* section, I noticed a favourite genre pop up: heavy metal. Although I found the report on Alice Cooper's *School's Out* album ok, I felt you made some small errors which should be pointed out to the un-informed by a long-time devotee of rock.

Sorry to be so pedantic, but you refer to Marilyn Manson as a death metal act, when they are nothing of the sort (believe me I have listened to every sub-genre of the rock music scene, so I should know). They started as industrial – mainly due to the guiding hands of Trent Reznor, but have now moved over to the dance/rock/prog crossover format (popular in the States, and pioneered by acts such as Marilyn Manson). Oh, and you spelt the name wrong!

**Dan Cook, by email**

*Hmm... Marilyn Manson has had more coverage in the nation's leading metal mags than anyone else in the last few years, and since there's also some overlap between metal, industrial and death metal – and since M. Manson also spreads death metal's cheery kill-'em-all message – I'd say that the connection is, or at least was, stronger than you make out. And yes, just like your very own email, that Milestones piece did indeed contain a spelling error.*

**Phil Strongman**

## Opcode update

The following is an excerpt from a post-NAMM report on the Save OMS/SOS Vision Campaign. It was compiled by musician and composer Colin Mansfield on behalf of the efforts by more than 100 musicians, composers and developers to save OMS as a standard protocol and Vision as an audio/composition sequencing tool.

Supporters of OMS and Opcode's Vision attended the NAMM 2000 show in Los Angeles February 4-6. Many wore Save OMS buttons; some wore SOS Vision

Marilyn Manson – not a death metal act, y'know

### sound bites

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buttons, including employees of major companies and distributors, users, and a number of well-known musicians. Many people at NAMM were concerned about the future of OMS. Among developers, there was significant interest in ensuring OMS continues to work with Apple's recently announced OS X for Macintosh. The vast majority of companies in the music industry are using OMS in some way or another. According to informed industry sources at the show, many, including Yamaha and Digidesign, are very worried about the future development of OMS and Vision.

Henry Juszkiewicz, CEO Gibson Musical Instruments, met with at least one distributor and one major manufacturer at the show to discuss the future of Opcode products. But reportedly there was no change in Gibson's position – no announcements were made about either OMS or Vision, leaving the question of future development unanswered.

At the same time, Gibson turned away a large number of distributors, companies, reporters and users who wanted to meet with Juszkiewicz. Many industry people were left wondering what was going on, especially with OMS, but also with Vision.

On February 1, articles appeared in the online editions of *MacWorld UK*, *MacWeek*, and *AudioMIDI*. The story has also been reported in the March issue of *The Mix*, several times on *MacInTouch* and updates on the situation have been included in *MacCentral*'s 'Musical Macs' column. Editorial letters have been published in *Keyboard* and other music magazines around the world (12 to date), and the story has been translated for distribution in seven languages.

In the first 24 hours after news stories began appearing, the OMS petition gained more than 200 user signatures. Since 1 February, nearly 600 people have signed the petition (www.saveoms.org) bringing the grand total to 3,628 signatures, including 174 developer signatures. The amount of developer support is ironic, given Gibson's interest in promoting GMICS as an industry standard. By the company's actions, they are ignoring not only a strongly supported current industry standard (OMS ) but also they're affecting the very developers who would support GMICS.

Petition supporters represent organisations and individuals as diverse as: NBC, Red Hat Software, Blue Oyster Cult, GVOX, Digidesign, Emagic and the Glasgow City Council Education Committee, along with countless universities, a multitude of music, video and production studio representatives, musician Larry Fast (Synergy, Peter Gabriel) and Craig Anderton, technology editor for *EQ* magazine, contributor to *Keyboard* and author of *Home Recording for Musicians*. Signatures are coming in from, Japan, France, Spain, the United States, Germany, Sweden, the Netherlands, Denmark and many others. For more information contact: www.saveOMS.org or www.sosvision.org

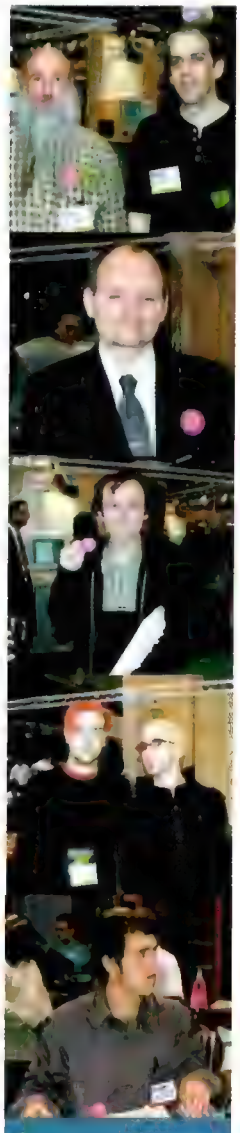
**Colin Mansfield, by email**

***The Mix* contacted Gibson for the official word on Opcode, and here it is...**

*Gibson Guitar Corp. purchased the stock of Opcode in the summer of 1998. At that time Opcode was experiencing significant reductions in sales and was unprofitable. Gibson believed in the product, a new product program and the people. In the first months following the acquisition, losses increased to the point that the investment budgeted for Opcode for several years was depleted in a significantly shorter timeframe. This led to a disagreement with the President and former shareholder, and eventually led to costly litigation initiated by Gibson. Despite this, Gibson continued to invest heavily , with hope of a positive change in the situation.*

*Despite the investment of several million dollars, with continued difficulties and costs due to litigation, it was clear that Opcode could not operate profitably. During the fall of 1999 Gibson was forced to cut back funding, and look for other ways to recover its investment, while continuing to offer support for Opcode customers.*

*There have been discussions with several large companies who are interested in purchasing OMS and Vision. These talks have been ongoing for months. These discussions will continue, as well as others, in the hope of finding a home for these fine products. In the meantime, Gibson is making every effort to provide technical support to current customers.*



Opcode supporters at this year's NAMM show in LA

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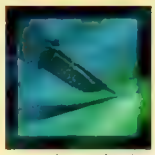
## letter of the month

### And on, and on



The pursuit of sonic perfection has definitely left the quest for good music in its wake. We are living in an era where musical discussion revolves around which knobs were twiddled while tweaking the perfect decay tail to standard room reverb. Who really gives a rat's arse? Melody, rhyme, rhythm and solid lyrics are the tangible things that make songs memorable, unlike two dustbin lids being banged really fast while switching a lawnmower on and off in time, even if it is recorded with 24-bit, 96kHz accuracy. As for sonic perfection, how perfect are our ears? The average Joe and Jill would not buy a CD or appreciate a song more because the minute errors of quantisation have been reduced.

I ask you this in all honesty: are we simply being bombarded by products simply because what started out as a good idea gave rise to a company who employed too many people, and now needs to sustain itself – hence more products, the true value debatable?

**Clyde September, South Africa**

"Are we simply being bombarded by products simply because what started out as a good idea gave rise to a company who employed too many people, and now needs to sustain itself - hence more products?" But of course – it's up to us to filter the shite from the white, whether it's music, people, hi-fi or stir-fried rice. There's lots of good music it out there – look for it! MP3 is awful, yes, so stick to your records and CDs. Good music is good music, period, but it's even better if it's recorded properly, on a high-quality format. Have I missed anything?

**Chris Kempster**

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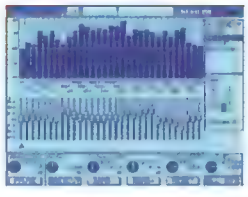

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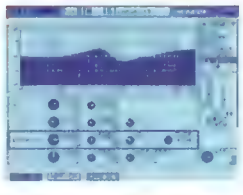

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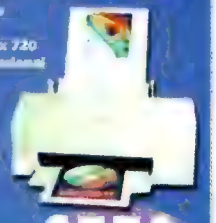

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## Who tests the gear

Our team of equipment reviewers are all audio industry professionals, experts in their chosen fields – engineers, producers, remixers, musicians and software specialists. This means that you can trust the opinions expressed in our reviews.

## How the gear is tested

Wherever possible, the gear we test is used in actual sessions. Indeed, some of the biggest-selling records this year will have acted as testbeds for our reviewers. We believe that to truly evaluate kit properly, it needs to be tested in studio conditions – not a dark room!

## Impartiality

Reviews in **THE MiX** are in no way biased towards certain manufacturers. We will deliver an impartial verdict on a product whether or not a manufacturer advertises in this magazine. Our first duty is to you, the reader, and our goal is to give you the best possible advice on buying equipment. We will not hesitate to expose sub-standard equipment.

THE MIX EDITOR'S CHOICE

Products that are judged to be outstanding by our reviewers are awarded the 'Editor's Choice' tag. In a standard review, this means that the product offers exceptional performance for the price it retails for. In group tests, there may be two awards – 'Best Performance' and 'Best Value'. The 'Best Performance' award will go to the product that offers the best performance irrespective of price, while the 'Best Value' award will go to the product that offers the best price/performance ratio.

## *The Mix* reviews team

**Alan Branch**
Producer/engineer/remixer and part of London's famed On-U-Sound production team, Alan's recent credits include Primal Scream's *Exterminator* album. He's currently working on a remix for Nine Inch Nails

**Adam Crute**
Adam manages *The Mix*'s in-house recording studio and masters our cover CD every month. A dedicated fan of PC-based music software, mere mention of the word 'Mac' brings tears to his eyes.

**Trevor Curwen**
Engineer/producer and retro fiend Trev was the man behind the desk on some of the best albums of the '90s, including Portishead's *Portishead* and Spritualized's *Ladies and Gentlemen We Are Floating in Space.*

**Steve Evans**
A Bath-based freelance engineer, producer and songwriter, Steve learned his craft both on the road and in his own 16-track commercial studio. His most recent project was a remix of M's 'Pop Muzik'.

**Adam Furst**
His production credentials take in film soundtracks and acts such as Drugstore and indie band Astrohound. Adam is based 2,500 feet up in the Brecon Beacons, where he runs his own Twin Peaks residential studio.

**David Harrow**
Producer and keyboard player David has appeared on albums by Lee 'Scratch' Perry, Dub Syndicate and Jah Wobble. His alter-ego is drum'n'bass guru James Hardway – expect to see a new album this June.

**Jon Musgrave**
A house engineer at London's Roundhouse studios, Jon's diverse credits include Culture Club, Beverley Knight and Mercury Rev. He recently engineered the Mike Spencer remix of Queen/Bowie's 'Under Pressure'.

**Tim Oliver**
Tim began his career in 'Madchester' where he produced early demos for The Stone Roses. He went on to notch up credits with Gene, M-People, New Order, The Happy Mondays, and most currently, Indigo Girls.

**Seb Pecchia**
Seb earned his spurs as a house engineer at Peter Gabriel's Real World studios. Now in the process of kitting out his own top-notch studio near Bath, Seb will shortly be releasing an album under the moniker 'Snowhill'.

**Sean Vincent**
Having started his career as a tape-op at Matrix studios, Sean has gone on to carve out a successful, and varied, career as a studio and live engineer. He's ridden the faders for Five, 911, Adam Rickett and The Honeyz.

Filter round-up starts on p.50

# reviews

This month we delve into the depths of sonic abuse with Sherman's Quad Modular Filter, test the budget valve compressor from TL Audio's new Fatman range, take it to the top with AMS-Neve's VX Rack modular mixer, and much more...

# TLAudio Fatman Fat 1

## Stereo valve compressor

**Price** £299

**For** Excellent build quality › Good selection of presets › Lovely valve sound

**Against** Unable to act as two independent mono compressors

**Verdict** An excellent compressor with valve warmth and useful presets – why didn't someone think of it sooner?

Just about everybody who's involved in recording must now be aware of the resurgence of valves and how they can really improve the sound of our recordings. When TLAudio released their Ivory range, they brought valve technology to the masses, offering excellent products at sensible prices. Over the last couple of years loads of you have bought valve outboard, but it seems that some have experienced problems getting the best out of it, evidenced by the large number of enquiries TLAudio were getting on how to set up their Ivory compressors to achieve the best results. Obviously, a 24-hour compression advice line would be a little OTT, so TLAudio have taken the hard work out of compression and come up with the Fat 1.

## Overview

The Fat 1 is the first in a new range of products designed to bring valve quality to the less-experienced engineer or musician. Based on the Ivory range, the Fat 1 is a high-quality stereo valve compressor, with the added bonus of 15 presets. But don't let the word 'preset' put you off – there's also a flexible manual-mode so you can set up custom compression settings if you can't get the job done with one of the presets.

The Fat 1 looks somewhat different to TLA's usual 2U rack affair, housed as it is in a 3U half-rack sized box with a deep crimson paint job and wacky graphics. In fact, with the new 'Fatman' logos emblazoned across the unit, TLAudio have stepped away from their usual more serious look. There's also a rack tray for holding one or two Fat units.

In the centre of the unit is the familiar round VU meter as seen on other TLA gear, with all the controls below. There's input gain, output gain, gain make-up, program selection, threshold and ratio. Below these rotary controls there are also switches for attack, release, knee, meter (output or gain reduction) and an on/off switch for bypassing the compressor. Also located on the front panel are a pair of instrument inputs and the power switch, with LEDs to indicate power and when the compressor is on.

Around the back of the unit are the line ins and outs on TRS jack sockets for balanced signals, but the Fat 1 also accepts unbalanced signals with a switch to select between -10dB and +4dB for compatibility with various set ups. Unlike some 'budget' gear, the Fat 1 has a built in high-quality mains transformer, instead of a low voltage AC adaptor.

The programs, or presets, are grouped into Vocals, Keyboards, Bass, Guitar, Drums and Mix. Each program has its own unique sound, but the input gain, output gain and make-up gain are always active to allow the user to balance the unit within their system. If the Manual program is selected, then the signal is passed to the manual controls so you use your own settings. Unfortunately, it's not possible to use the Fat 1 as two independent mono compressors, but if a mono source is used it should be input into the left channel. In this case, the output will appear at both the left and right outputs.

## In use

The Fat 1 was pressed into service as soon as it arrived for compressing an overall mix. The Mix 1 setting was selected as this is supposed to be ideal for pop music. The tune was actually fairly housey, but that's close enough. We drove the Fat 1 pretty hard to get a nice valve warmth. This setting worked well, although it did tend to pump a bit, but considering this is meant for pop, not four-on-the-floor cone-busting house, it coped well. We switched to Mix 3, which is meant for dance music, and things were much improved. With a little adjustment of make-up gain, we were happy to put the mix down.

**The old in out**
Even those who don't understand how compressors work will find the Fat 1 a doddle

words **Sean Vincent** images **Gavin Roberts**

The next test for the Fat 1 was the following day on a session involving vocals, acoustic guitar and electric guitar. The Acoustic Guitar setting worked very well and with just a little desk EQ, things were sounding very warm. The Electric Guitar 1 setting was also very good for recording some subtle lead guitar over the original acoustic track.

The vocals were recorded using a large-diaphragm dynamic mic for a change – the kind of thing you might usually see in a bass drum – with the aim of achieving a vintage '60s sound. Using the Vocal 2 setting, we started recording. After a couple of takes we decided that although it sounded good, we wanted a more pronounced valve sound, so we increased the input gain to overdrive the unit slightly and this gave us the required effect. Once again, we mixed the track via the Fat 1 using the Mix 2 setting this time, and we were very happy with the results.

Just for testing purposes, we also ran some drum loops and synth bass material through the Fat 1. Using the Kit setting on loops gives a nice fat bottom-end to the sound and also brings the highs into some kind of order, making this an ideal setting for drum overheads. Using the Keyboards setting was fine for general pads and pianos, but synth basses sound better via the Bass 2 preset. We also put some sampled kit sounds through the Fat 1 – kick drums were nicely squashed by the Kick setting and snares didn't sound too overdone, as can sometimes be the case.

The Manual mode proved useful for dealing with extreme cases, although some more control over the attack and release would have been nice, but that's a small gripe considering the price.

## Verdict

Overall, TLAudio appear to have done it again. The Fat 1 is a great little compressor that could hold its own against more expensive models. The idea of putting presets on a compressor may not be new, but until now we've mainly seen it on plug-ins. As anyone who uses these knows, the ability to get a mix up and running quickly using presets is a real asset, and you can always come back later and tinker with the settings.

For someone who knows they need a compressor, but doesn't know how to use one, this would appear to be the perfect solution. The Fat 1 is sure to find favour among the thousands of home studio owners and especially those using computer-based recording, as this could be the first and last link in the recording chain to fatten up your tunes. At this price, you can't really argue with the Fat 1. There's no real competition for it right now, so its fate lies in whether recordists will like the idea of cheap valve compression with the bonus of preset programs.

***More from: TLAudio Ltd, Sonic Touch, Iceni Court, Icknield Way, Letchworth, Herts, SG6 1TN Tel: 01462 680888 Web: www.tlaudio.co.uk***

## specifications

**Frequency response**
+0, -1dB: 10Hz to 20kHz
+0, -3dB: 5Hz to 40kHz

**Hum and noise**
-78dBr, 22Hz to 22kHz

**Threshold**
+10dB to -20dB

**Input gain range**
-20dB to +20dB

**Output gain range**
-20dB to +20dB

**Ratio**
1:1.5 to 1:30

**Attack**
Fast – typically 0.5ms (program-dependant), Slow – typically 5ms

**Release**
Fast – typically 0.2sec
Slow – typically 1.5sec

**Knee**
Hard and soft

## CD info

**track 05**
Drums, synth bass, acoustic guitar and a stereo mix all get the Fat 1 treatment

# Roland VSR-880

## 24-bit digital studio recorder

**Prices** VSR-880 £999 VSR-880 with hard drive £1,299 › DIF AT interface £376 › VS8F-2 FX card £247 › VSCDR S2 CD writer £645

**For** Excellent audio quality › Very compact › Back-up data to CD-R

**Against** Some kind of remote would be useful › No facility to save CD image file

**Verdict** A different take on what a studio recorder should be, and ideal for use with Roland's V-Mixers

At the official launch of the Roland V-Mixer back in November, there was a certain 2U rackspace occupied by a rather familiar-looking front-end next to the VMC-7200 that was on show. This unit acquired a certain amount of interest from various people who were there to look at the new V-Mixer. As it turned out, this unit was Roland's new VSR-880.

Now, Roland's VS-880 and VS-880EX have become classics in the short time they've been with us, and when the original VS-880 was launched, it was an incredible breakthrough. No one had seen such a juicy spec list on something so compact before, and consequently, the VS-880 went on to become one of Roland's biggest-selling products, with more recent upgrades also selling well.

Anyone familiar with the VS way of working will no doubt have told you how intuitive it is, and that it's really hard to imagine having to work a different way when the time comes to upgrade to a bigger system. VS owners' thirst for more was temporarily quenched with the release of the VS-1680, but if you want to use an external mixer, digital or analogue, then you really need separate ins and outs for all the tracks. And this is where the VSR-880 comes in. You could use it to expand your existing VS recorder, but the real market for this would appear to be for those wishing to move up to a fully-modular professional system, while retaining the familiar look and operating system of the VS recorders.

### Overview

Now the VSR-880 isn't like most MDMs (that stands for 'modular digital multitrack', in case you're wondering) – for a start, you've got an onboard digital mixer. It's got the same spec as the VS-880EX, but without the faders and the tactile control surface. There's also the option of fitting a VS8F-2 effects board, giving two stereo digital effects onboard. Not only that, but you also get Roland's speaker modelling for use with their D90 monitors as well as the mastering effects for mastering direct to CD via the SCSI output to Roland's VS-CDR S2 optional CD burner. As you can see, this hard disk recorder can do a lot more than just record and edit audio.

### Zooming in

The VSR-880 resides in a grey, 2U rack case that looks very much like the control surface of the VS-880EX. Obviously, there are no faders or gain pots, but all of the other controls are accessible as on the desktop model, apart from some of the dedicated buttons that now double up with use of the shift key. The backlit LCD display is just the same as on the VS-880EX and sits comfortably in the middle of the front panel.

The hard drive lives just behind the removable panel on the right of the display and can be easily accessed using thumbscrews. On the far left-hand side are a pair of TRS 1/4" jack inputs which can be used as mic or line inputs and are set using the large gain control above them. This dual-concentric pot also adjusts the headphone volume.

Around the back, things look a lot more professional than on the other VS recorders. For starters, there are eight dedicated inputs on phonos. Then there are the outputs, arranged in such a way that they can be configured to act as 8-track outputs, or as various other outputs like effects sends and the master outputs.

Obviously, if you're using the VSR-880 with an external mixer, the master outputs or the aux sends could then act as the individual track outputs, thus giving the user the flexibility to use the VSR in a variety of situations. Being a digital recorder, the VSR naturally has the standard S/PDIF connections on both phonos and optical.

### specifications

**Tracks** 8

**Virtual tracks** 128

**Sample rate** 48, 44.1, 32kHz with vari-speed

**Inputs**
8 x RCA phono, 2 x TRS balanced, 1/4" jack

**Outputs**
8 x RCA phono

**Digital I/O**
S/PDIF coaxial/optical

**R-Bus** SCSI2 (25 pin)

**Footswitch**
1/4" jack input

**MIDI** In, Out/Thru

**Max. capacity** 32Gb

**Max. songs** 500

**A-D conversion**
24-bit, 64 x oversampling

**D-A conversion**
24-bit, 128 x oversampling

words **Sean Vincent** images **Gavin Roberts**

Also included is Roland's own R-Bus connector. This is a digital connection for use between the VSR and a V-mixer, which carries all the I/O digitally. The SCSI II port allows for the connection of a CD-R writer or an external hard drive such as a Zip for archiving or recording. The usual MIDI in and out are located alongside a 1/4"-jack footswitch socket, and the MIDI out can be assigned to work as a thru if desired.

## In use

So what do you get for your money? Well, quite a lot actually. The VSR-880 is capable of recording 128 tracks of 24-bit digital audio. These tracks can only be recorded eight at a time and played back eight at a time, but each of the eight tracks has two banks of eight virtual tracks, meaning you can record numerous takes without having to erase any until you've decided which ones you want to keep.

These virtual tracks are great for making vocal comps or bouncing submixes around to free up space – and the 999 levels of undo mean that even when a track has been edited together from various takes, you can still go back and change it without having to re-record anything. Like the others in the VS range, the VSR features the usual cut, copy, paste and looping features as well as eight locate points. Like on other HDRs, you also get auto-punch in and out for recording when you're on your own, which is always handy.

The mixer section is an 8-channel digital affair with recall and automation. Each channel comprises input selection, attenuation, phase, mix level, pan, 3-band EQ (adjustable shelving for hi and lo and parametric mid), aux send on/off, aux send level, channel link (for stereo operation), FX1 ins, Effect 1, FX2 ins, and Effect 2. If you select an effect for a particular channel, then you also get a send level and pan for each effect. An interesting feature is the level link. This lets you link adjacent channels for stereo operation, but only the levels are linked – all the EQ, FX and so on are independent.

When an input channel is assigned to a specific track, you also get a V.Track selection option that lets you set the destination virtual track. Usually you would only adjust this from the second take onwards, but it does mean that you can record source material wherever you like.

Because this is a mixer, you could plug various sources into all eight inputs and record them to just one track if you like. It's easy to forget this isn't a standard MDM. To enhance flexibility, the VSR can be put into one of six recording modes (for more on those, see the box on page 30).

A new button that has appeared on the VSR880 is the CD-R/W Mastering key. This enables creation of an audio CD of your finished song using the optional CD writer. The Mastering Room function bounces tracks 1-6 to tracks 7 and 8 to make a stereo master. This can then be written to CD-R in either 'track at »

## Optional extras

## Recording modes

There are six recording modes on the VSR-880, and each has its uses.

**VSR**
24-bit, top-notch quality, compatible with the best. No loss of sonic quality when played back.

**CD-R**
Turns the VSR-880 into a four-stereo-pair recorder. The image file creation step is omitted when in this mode.

**MAS**
Sonic equivalent to DAT or CD. Ideal for use when editing stereo masters.

**MT1**
Still reasonably high quality, with double the recording time of MAS mode.

**MT2**
Good for normal use; more recording time than MT1.

**LIV**
Ideal for recording live gigs. Uses little memory, but the sound lacks the resolution of other modes.

The Roland data compression technique (as used on this, and all the VS range) has been quoted as one of the best-sounding available. In tests, we couldn't hear a significant difference between MAS mode and MT2 mode although VSR mode does sound better.

once' or 'disc at once' mode. If all eight tracks have been used for the song then a mix to DAT or other stereo master is necessary before re-recording back to the VSR in order to burn a CD. The VSR also supports re-writable discs, so you can erase tracks that have not been finalized.

The VSR lets you select write speeds and what destination tracks to use for your master as well as reminding you to obey the copyright laws... be warned! As on the other VS recorders, when you make a CD, the VSR first makes an image file, which takes a fair old time, then it burns the CD.

This image file takes up approximately the same space as the equivalent stereo recording in memory, so you need to have enough space for it before you begin the process. An often-brought-up niggle with previous VS recorders was their inability to save this image file, as it takes so long to create. If your finished master is 60 minutes long, the VSR will take 120 minutes to create the file and then another 60 minutes to burn the CD. This 'burn time' is reduced if you select 2x or 4x write speed. When the writing process is over, the VSR asks if you would like to write another, and if you decline, the image file is deleted. Surely Roland can find a way of storing this image file for later use?

Perhaps the most useful function of the CD writer is to back-up song data, doing away with the need for a Zip drive or using the clumsy DAT back-up method. Blank CD-Rs are inexpensive and easily available, so Roland scores highly for this feature. Sometimes you can't fit a song onto one disc, but this system lets you use as many as is necessary for back-up purposes. Just remember to label them properly.

## Verdict

Existing VS users should consider the advantages of upgrading to a modular system using this route. You can still use all your stored song data from the VS recorders and skip any learning curves you might encounter with other systems. Having two or three of these sync'ed up would really do the business, although backing up your data would necessitate the use of the CD-R writer as well to make it feasible cost-wise. It would have been nice to be able to back-up the CD image files, and a software editor would go a long way toward counteracting the small LCD screen.

Overall, the VSR-880 is a winner, due mainly to its simple operation and cost. The flexibility of this unit makes it an ideal first step for anyone wanting to get into digital recording, especially as it could become part of a much bigger pro system. The combination of a V-Mixer and the VSR-880 would be ideal for a compact, yet professional set-up, and existing VS users can always use it as an extra eight tracks to sync up to their existing recorders.

***More from: Roland (UK) Ltd, Atlantic Close, Swansea Enterprise Park, Swansea, West Glamorgan SA7 9FJ Tel: 01792 515020***
***Web: www.roland.co.uk***

# HDR24/96. MACKIE'S NEW 24 TRACK RECORDER. WORKS WITH ANY MIXER. NO EXTRA COMPUTER OR SOFTWARE NEEDED.

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- Affordable pull-out media
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New hard disk recorders were all over the place at this fall's AES convention.

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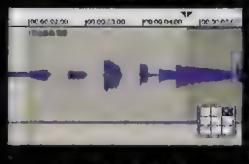

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# AMS-Neve VX Rack

## Modular rackmount EQ and dynamics

**Prices** see box

**For** Sounds great ⓘ Familiar to Neve V-series users ⓘ Solidly engineered

**Against** Costs about the same as a new car ⓘ Busy front panel

**Verdict** The best elements of a top-quality desk made portable, but with a pricetag to match

Many readers of *The Mix* will no doubt dream of the day when they have their own top-notch studio and thankfully, due to the miniaturisation and affordability of equipment these days, for many that dream has become a reality. There are a small number of people, however, whose dreams couldn't possibly be satisfied by anything less than the biggest and best available. In recording studio terms this means a big control room containing a desk the size of a limo and a recording area the size of a couple of tennis courts – probably with a couple of tennis courts and a swimming pool out the back for good measure!

When it comes to picking the desk for this dream studio, it's really a three horse race: SSL, AMS-Neve or Amek 9098. However, picking the desk could well pale into insignificance when you consider the building work required to do the thing justice. All of a sudden the compact digital option begins to look far more attractive, and in a sense, this is where AMS-Neve's VX Rack comes into play.

As more and more people move their work into the digital domain, they're finding that it's hard to achieve some of the sound they once did with good ol' analogue. As a result, support for analogue processing is still very strong, especially in music production, although not always strong enough to justify a large-frame analogue console. So in an attempt to achieve the best of both worlds, end users are now combining the functionality of digital equipment with the sound quality of analogue. In order to bring some of those decades of analogue development to the hands of this market, AMS-Neve have designed the VX Rack, featuring modules from the famed 'V' series desks.

### Overview

The Neve VX Rack is a modular design, housing up to ten vertical modules in a 4U rack. There are two modules available – the first being the mic/line input module. In addition to the input stage, it features a dynamics section in the form of a compressor and gate/expander, and high- and low-pass filters. The second module is the famed Neve VR Equaliser, which features two parametric mid-bands, and high and low bands with two bell widths and a shelving option.

As the unit is derived from a desk design it's hardly surprising that it comes with an external power supply. Although this is not as substantial as a desk supply, it's still a weighty 2U rack unit that needs at least 1U of space either side of it for ventilation. The multi-core connecting the rack and power supply carries various DC power rails for logic switching, phantom and audio, further re-enforcing the desk pedigree of the VX rack. However, audio connections are on four multi-pin ELCO connectors (mic inputs, line inputs, line outputs and key inputs) so you'll have to get some suitable looms made up.

### Killer combo

As the VX is a modular rack the option is there to fill the rack with your own combination of modules, and there are a couple of functions that require the rack to be loaded in a certain order. Essentially, the best way to fill the rack is with alternating modules – input and dynamics followed by EQ – and this is how the review model was fitted. If you do this then the compressor can be stereo linked to the one to its right, even if there's an EQ module in between.

Similarly, this set-up allows the EQ module to be switched into the side-chain of the dynamics module to its left – both of these are useful functions drawn from the desk design. Unfortunately, there are no other routing facilities available, so if you want to connect the input module to the EQ module in the next space, you'll have to parallel output to input. One other feature of the rack is the global signal threshold. This selects the level required to illuminate the 'signal present' light on each a module. Though not essential,

### prices

- Rack shell and power supply £2,556
- EQ module £597
- Mic & dynamics module £851
- Rack and PSU fitted with five EQ and five mic/dynamics modules £9,794

### CD info

**track 06**
A drum loop treated in various ways with filters, compression, gates and EQ

words **Jon Musgrave** images **Simon Dodd**

this is a nice touch.

To anyone who knows the 'V' series desks, the layout of the VX modules will be pretty familiar, but here's a quick recap. The input and dynamics module features an input stage switchable between mic and line, with phase reverse switch, phantom power, and a 30dB pad option on the mic stage. This is followed by high-pass and low-pass filters with a 12dB/octave slope. Next comes the dynamics section which is divided physically so that the gate/expander is on the left and the compressor on the right.

The gate/expander offers fully variable threshold, range and release parameters, while pulling out the range button switches the attack rate from 1msec to 100 micro seconds. Rather than have a hold time, the Neve gate features variable hysteresis, which is an amount in dB by which the signal has to fall before the gate starts to close.

Turning this knob fully anti-clockwise turns the gate into an expander with a 2:1 ratio. It is possible to connect an external key to the gate, and pressing the key button activates this function. The gate can also be switched to 'duck' mode with the inverse switch.

The compressor/limiter side features variable threshold, ratio (up to limiting), and release. Pulling the ratio button switches the nominal attack time from 1msec to 100 micro sec, although strictly speaking the attack is programme dependent. The compressor circuit also has a stereo link facility, which links to the next dynamics module as described above. Finally, there's a ten part LED along the top of the module which indicates gain reduction from 1dB to 20dB.

The EQ module features four overlapping bands, and has input and output trim pots. The two mid-bands offer continuously variable frequency control with +/-18dB of gain and fully variable bell width. By contrast, the top and bottom bands again have continuously variable frequency control but with three shape options: regular bell, high Q bell, and shelving. Again, gain is +/-18dB. Common to all bands is a bell width which decreases with the amount of gain applied.

## In use

As with any truly professional bit of equipment, 'straight out of the box' is not necessarily an option. In the case of the VX Rack there are a few things which need to be taken into consideration. Firstly, all audio

## AMS-Neve current music range

## specifications

**Mic input**
Transformer balanced

**Gain range**
-16dB to +64dB continuously variable

**Headroom**
>26dB above nominal input level ref to 0dBu

**Line input** Balanced

**Gain range**
-10dB to +10dB continuously variable

**Headroom**
>26dB above 0dBu

**Outputs** Balanced

**Gate Threshold**
15dBu to -55dBu

**Attack time**
1ms and 100 micro secs

**Release time**
30ms to 3sec

**Range** Up to 50dB

**Hysteresis** Up to 25dB

**Compressor threshold**
+20dBu to -30dBu

**Attack:**
Programme dependent 1ms/7ms normal, 100 micro secs/7ms fast

**Release time**
30ms to 3sec with auto release option

**Ratio** 1:1 to limiter

**Gain makeup**
0dB to 30dB

**EQ section**
**Frequency bands:**
**Lo** 33Hz to 370Hz
**Lo-Mid** 190Hz to 2kHz
**Hi-Mid** 800Hz to 8.7kHz
**Hi** 1.5kHz to 17kHz
**Q-width of Mids**
0.5 to 9
**Lo and Hi**
Switchable Q - 0.71 / 2
**Gain** +/- 18dB throughout
Input trim +/- 5dB
Output trim +/- 5dB

The VX Rack's surface is jam-packed with controls

connections are on multi-pin ELCO connectors.

The unit comes supplied with four ELCO plugs and all the pin wiring diagrams, plus some useful advice on floating and grounded balanced connections, so although a little time-consuming, wiring up the audio side of things shouldn't be too complicated. The other consideration concerns mains earthing. In most cases this shouldn't be a problem, but good advice is supplied in the manual for routing out potential earthing problems.

Once all cabling is sorted out, and the power supply connected via the hefty brass multi-core connectors, everything should be plain sailing. However, one thing which is immediately apparent about the module design is that everything needs switching in. What's more, many of the buttons have LEDs alongside them. With a number of functions selected, the overall result is very much like a Christmas tree. This does, however, combat the very dark colour scheme.

As with any desk channel strip design, part of the remit is fitting a large number of facilities into a small space. The VX Rack certainly does that, and at times feels very crowded. But this goes with the territory, and pales into insignificance once the sonic capabilities start to shine through. One other idiosyncrasy of Neve equipment is the orientation of the knob scales. In many cases the mid-point is at the six o'clock rather than twelve o'clock, but this is something you just have to get used to with Neve gear.

One of the many plus points of the VX Rack are the transformer balanced mic amps, which are very neutral and clear, and recent improvements over the previous V-series circuit have reduced the distortion figures. Moving on to the gate/expander, again the quality of the unit is obvious. The hysteresis function is in many ways much better than the more common hold option, and it remains a mystery why you don't find it more often on other manufacturers' gates.

The VX compressor/limiter is a very flexible processor, and benefits from a couple of good design factors. Firstly, with a programme dependent attack rate it's easy to get quick results. Secondly, with a manual gain make-up control, you won't find yourself battling against an automatic VCA. In the studio the compressor is easy to use and achieves good results, although maybe not quite in the league of the best outboard units.

The VX Rack EQ module is everything you would expect from a Neve EQ, offering very powerful and flexible sonic surgery or subtle enhancement, depending on how far you go. One slight annoyance is that because the modules are based on the desk designs, the filters are in the mic/dynamics module, when they would prove just as useful in the EQ module, but maybe that's being a little greedy. In fact, if there's one consistent gripe about the VX Rack, it's simply that the modules are each one half of a standard channel strip. This means that to get a mic amp with EQ you're going to have to chain one to the other physically by paralleling output to input.

## Verdict

It would be extremely difficult to fault the AMS-Neve VX Rack on anything other than very minor points. Although it's quite bulky, you would be hard-pushed to find five mic amps with EQ and dynamics of this quality in a rack any smaller. Yes it's expensive – very expensive – but if you were to buy five Focusrite Producer Packs, you'd be looking at a similar bill.

What's interesting is that three of the best channel strip designs on the market today (Focusrite ISA, Amek 9098 and AMS-Neve VX) all bear the hallmark of Rupert Neve, which is quite some achievement. As the musical world drifts further and further into the digital domain, and large-scale analogue desks become less and less common, it's units like the AMS-Neve VX that will keep the analogue legacy alive.

***More from: AMS-Neve, Billington Road, Burnley, Lancs BB11 5UB Tel: 01282 457011***
***Web: www.ams-neve.com***

'Heavy duty' is an appropriate phrase to describe this unit's power and audio connections

# TC Works Spark 1.5

## Audio editor and processor software for Mac

**Price** £299 (free upgrade for registered V1 users)
**For** VST compatibility › Flexible FX routing › Creative transitions for CD burning
**Against** Slow updating on long waveforms › Awkward zoom for lining up transitions
**Verdict** More than a simple wave editor, Spark allows professional control over CD mastering and high-quality effects processing

words
**Jim Warboy**

TC Works has a long history with high-quality digital audio processing. The company earns its good reputation by constantly delivering usable, up-to-date tools and in order to keep ahead of the pack they are now releasing an update for Spark, their real-time digital audio editor. Spark 1.5 is not just a Mac audio editor but also a real-time effects processor that allows playlists to be set up for CD burning.

The authorisation procedure involves faxing or emailing the unique challenge – a string of words generated by the program – to TC Works, who then send back a response that will only authorise the hard drive that the program was initially installed on. However, the program will run for 21 days without authorisation, so Spark can be used immediately.

### Overview

The transport window provides all the controls needed to navigate through an audio file, such as locator information, current time, sample rate and a jog shuttle – which, incidentally, can be used to control either audio scrubbing, real-time time-stretching, or varispeed/pitch changes.

The ASIO SoundManager driver enables recording using the Mac's input, though supplied drivers do support some audio I/O cards. Audio can be recorded from a CD and, through another dialogue box, can even be transferred from an Akai CD-ROM, which is handy. Meters display either the input level, a plug-in's output or the level recorded to the file, allowing the signal to be checked at various stages, and up to two plug-ins can be set up in the recording path.

The main window – Browser view – has the wave editor displaying a 'saveable' overview of a file, as well as a waveform to perform editing on, and there's now a pencil, along with the selection tool and the eraser for waveform editing.

Above this is the file management section, which lists all the recorded or imported audio as regions inside virtual folders. This is great for managing a project with many files because they can be grouped into different folders, while drag and drop support makes importing and exporting files quick and easy.

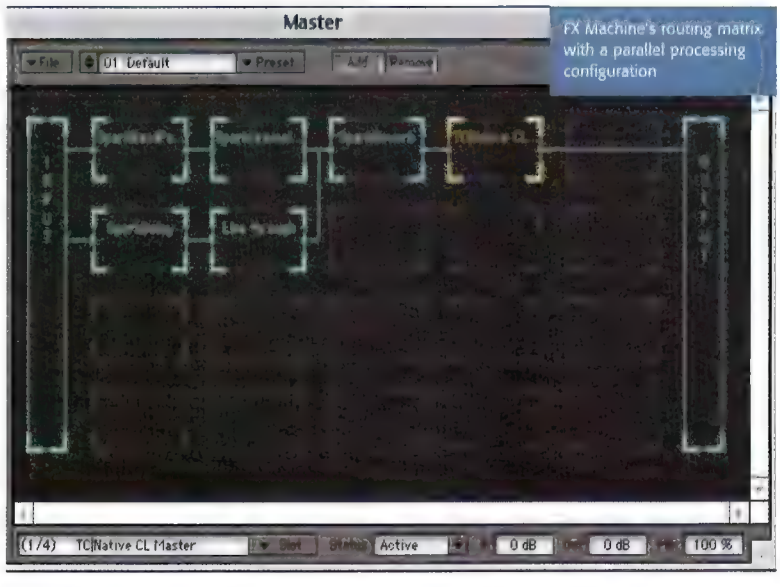
Next to this is the playlist where regions can be placed in any order for CD compilation or for trying different arrangements of a song by creating regions for the various sections and reassembling a new order.

A great new feature is the Cut Editor, which is used to define the transitions between playlist entries. Pauses are inserted automatically but there's a choice of other transitions. Let's check out those crossfade presets in full: Slow Out/In, Fast Slow, and Slow Fast (these all dictate the speed that regions fade out), Equal Power, which will keep the signal's energy constant during the crossfade, and Linear. A Hard Cut preset will simply butt two regions together and the Overlay transition will play both files together.

Of the two crossfade modes, Extend is probably better for music as it creates a crossfade outside the regions' borders, smoothing the transition »

### CD info

**track 01 & 07**
Try out the Spark software demo for yourself, or listen to the results of the new MaxIt plug-in, along with some examples of the crossfades and transitions available in the Cut editor



FX Machine's routing matrix with a parallel processing configuration

## system requirements

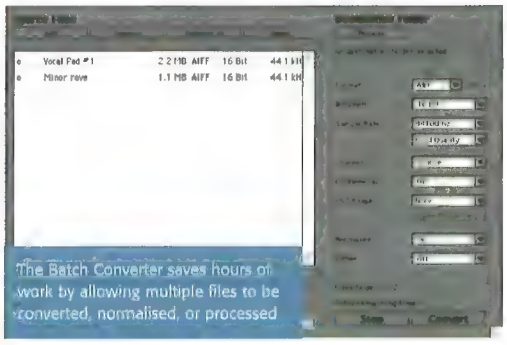
- Power Macintosh with 604 processor running at 166MHz or faster (G3 or G4 recommended)
- 64Mb RAM
- MacOS 8.1 or higher
- Adaptec Toast Pro (included) or Jam software and CD-ROM burner for CD recording
- Optional audio card for optimal sound performance recommended – drivers supplied for Digidesign Audio Media III, Korg 1212, StudIO, and ASIO Sound Manager

## features

- Support for 8, 16 and 24-bit
- Sample and re-sample rates up to 96kHz
- AIFF, SDII, WAV and MP3 file formats
- QuickTime support
- VST/MAS compatible
- Integrated file, playlist and edit window
- Batch processing
- Dedicated sampler support
- 4 x 5 plug-in routing matrix
- Support for Akai, EMU, Kurzweil, Roland, and Yamaha samplers

## Box of plug-ins

Those plug-ins in full:
TC Native CL
MaxIt
Expander
Reverb
Delay
CutFilter
BandPass
OneBand EQ
3-Band EQ
ResFilter
FuzzSat
Grainalizer


The Batch Converter saves hours of work by allowing multiple files to be converted, normalised, or processed

between them without affecting the timing.

The other mode, Overlap, is intended for dialogue editing.

A graphic display showing the end of one region and the beginning of the next helps to easily set up the crossfade. There is a downside, though – the length of the transition determines the zoom factor of the image because the window always shows the crossfade plus a fraction before and after.

Start and end times can be set for regions if only a portion of the audio is needed. There are nudge buttons to look within a definable period for better start and end times to improve the crossfade, while looping around the edit points helps fine-tuning. Playlists are compatible with both Adaptec Toast (supplied) and Jam, allowing a CD to be burnt, but for full Red Book compatibility Jam 2.5 is recommended.

Master view contains stereo master faders, peak program meters and the Correlator, a phase relationship indicator. To the right of these is the FX Machine, a powerful real-time, multi-effects plug-in. Complex parallel routing can be configured in its routing matrix, made up of a grid of four parallel rows, each holding up to five VST-compatible plug-ins.

The windows for the plug-ins are straightforward, with adjustable faders for the most-needed parameters. Some, like the new MaxIt plug-in, have level meters displaying the amount of processing. Settings can be saved for plug-ins and the entire FX Machine.

A bit of a bonus is that the FX Machine in Spark 1.5 can also be used as a plug-in within Logic, Cubase VST and Digital Performer. Real-time processing allows FX Machine to act purely as an effects unit by taking the input signal, processing it, then delivering it to the Mac output. As well as its real-time capabilities, Spark 1.5 should also appeal to people interested in editing samples, as it can transfer audio data to a range of supported samplers, as well as high-quality MP3 support for audio destined for the web. QuickTime support also gives the option of importing movies and processing the audio with the video.

## In use

The audio editing side of Spark 1.5 delivers all the functions we've come to expect from an audio editor, and the use of markers makes navigation around the waveform easy – especially when working on longer files. The main problem when working on long waveforms is the update time after each edit. Even when only a small portion of the file has been edited, the entire waveform has to be updated, taking up precious time – fine for the odd edit, but when putting the finishing touches to a collection of tracks things can get a little slow.

The Playlist and Cut Editor really opens up the creative possibilities when compiling CDs. The usual pauses between tracks seem almost crude, and the ease with which crossfades can be made inspires applications for them – for example, weaving in smaller pieces of audio, like quirky audio doodles that add a bit of interest, forming links or bridges between tracks. Unfortunately, because the zoom of the crossfade is relative and can't be set up manually, it can become a little awkward when lining up beats precisely.

The FX Machine is straightforward and produces high-quality processing. It's easy to route plug-ins all over the place and the graphic matrix makes for some great results with parallel processing. It doesn't take much to turn a regular piano into an unrecognisably bizarre synth sound. A few more plug-ins would have been appreciated, as the full potential of FX Machine was only realised by using other VST plug-ins.

Seeing how the G4's processor was being hammered on the CPU gauge was useful, though the 400MHz model used easily managed half a dozen plug-ins without even registering halfway.

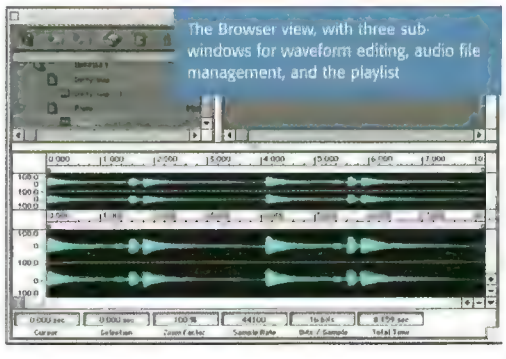
The MaxIt plug-in really injects a sense of power into a sound, with the energy push fader influencing how much the audio's perceived energy is being affected – just check out the demo on the CD. Using one of the presets, Push to Max, a dirty drum loop was really brought out of the speakers by pushing the energy fader quite high with a hard character setting. This is a very powerful plug-in that's also suited to more subtle applications where a cleaner-sounding result is the preferable option.

## Verdict

The few niggles with Spark 1.5 are easily outweighed by the amount it has to offer and, in a time where many musicians/engineers are burning their own CDs, the Cut Editor's extra control over transitions really helps to deliver a more professional result.

For those of you with other VST plug-ins – and let's face it, some people are literally giving them away these days – and a serious interest in effects processing, FX Machine's excellent graphic interface and compatibility with other VST programs make Spark 1.5 a tool well worth having.

***More from: Arbiter Music Technology, Wilberforce Road, London NW9 6AX***
***Tel: 020 8970 1909 Web: www.arbitergroup.com***


The Browser view, with three sub-windows for waveform editing, audio file management, and the playlist

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# JoeMeek VC3Q

## Dedicated recording channel

**Price** £199

**For** Excellent sound quality ⓘ 'Musical' compression and EQ ⓘ Flexible ins and outs

**Against** No hi-pass filter ⓘ Instrument input on rear panel

**Verdict** High-quality 'record anything' channel with computer-based recording in mind

If evolution is the secret of survival, our world may one day be populated not only by psychic plasma beings, but also by JoeMeek recording equipment. JoeMeek are tailor-making little green boxes for everybody these days, and in doing so are building in some nifty solutions to some of the problems encountered at the more affordable end of computer-based recording.

New in the 'Q' series of standalone recording channels is the VC3Q. The VC3 – its almost identical-looking predecessor – sold in its thousands, making it the most successful JoeMeek product ever. And even though it wasn't broke, they fixed it. They kept the mic/line preamp and the compressor, added an extra control for the compressor, and dumped the enhancer, replacing it with the 'Meequalizer'. And all of a sudden the men from the British National Science Museum turned up and started gabbing on about landmark products in the development of the audio industry over the last 250 years, and demanded one!

So, the boffins worked through the night and emerged, bleary-eyed, holding something very special. They handed over the only chrome VC3Q in the universe to the men from the museum and watched as it was whisked away to its glass display case in London. We thought we had missed our only chance, but then we got a call. Apparently, there was another...

### Overview

The VC3Q is an input conditioner, designed to help capture performance with recording media. This unit is in many ways the little brother of the VC6Q (see review in *The Mix* issue 71), but with some economies and additions that make it ideal for use in a computer-based studio.

The high-quality mic or instrument preamp is controlled by the big knob on the left, and there is a phantom power supply activated by a button at the back. There's no attenuator or pad button, but the huge input headroom means that the preamp can cope with just about anything. The rest of the knobs are smaller, and the next three control the compressor. The button marked 'compression' is quickly explained as the more traditional threshold control, but also varies the compression ratio according to how hot the input signal is – it's an intuitive kind of thing. Next is the attack control, absent from the VC3 (there was a fast or slow option switch), and the release control.

Sadly, the big blue 'Compressor Active' LED from the VC6Q is not included. There's no on/off indicator, but a green LED to the left of the attack knob glows in proportion to the amount of compression applied. The Meequalizer does have an on/off indicator however – a yellow LED to the left of the low, mid and hi knobs. All of this culminates in the 'Out Vol' knob, which has a red overload indicator on its left. The XLR mic and 1/4" jack line inputs are at the rear, as are the insert point, mix input, dual line outputs and power socket.

There are two features that make this unit ideal for hard disk recording. Not many people can afford the luxury of Pro Tools, and make do with cards like the Audiowerk 8, or the RTAS-based Pro Tools LE, for example. The disadvantage of these lesser systems is that they don't employ TDM technology, and they use the processing power of your computer to do much of the donkey work.

One of the most annoying symptoms of non-TDM processing is latency, meaning that there's a small delay between playing a sound and hearing it back through the input channel on your computer. Also, some audio cards don't like you playing back and recording audio on the same input/output channel, and will reward you with filthy digital distortion. The VC3Q helps you get round this by providing dual outputs. Now, with a minimum of patchbay or mixing desk hassle, you can monitor one output straight from the VC3Q and send the other to your recording channel at the same time. Very useful.

The Mix In input also comes in handy for situations where there's no mixing desk, for example, and you want to send a mix of signals to be recorded. Simply plug the output from your second sound source into the Mix In and adjust the level until you have a good balance. Again, a very handy, cable-saving option. The insert point is essential for creative recording, and its inclusion here makes this – in theory – a great box to have sitting by your computer.

words
**Steve Evans**
images
**Katherine Lane-Sims**

A little character goes a long way – even the British Science Museum were impressed with the VC3Q

## In use

Using the VC3Q couldn't be easier. The manual is informative and will help you to get great results straight away. Connection of the line input switches off the mic input automatically, and with the output gain set to zero you can set your levels easily by watching the output LEDs. Using a good quality mic – in this case an Audio Technica 4047 – there's no unwanted noise. The line input performs equally well, but would be more conveniently placed on the front panel.

The JoeMeek photo-optical compression continues to sound excellent. As mentioned previously, there's only one indicator light to show you what's going on. Although engineers like their lights, the fact that there's nothing to look at forces you to simply listen, which is no bad thing. The effect of the compressor ranges from pumping over-compression to subtle peak control, with a myriad of usable settings in between.

The compression control obviously does more than act as a threshold setter, and playing around with this in conjunction with the input gain reveals the power of the machine and the musicality of the effect. The great thing about this particular compressor is the natural element of the sound. The vocals retain their dynamics but also keep their place in the mix. On occasions it would have been useful to have a hi-pass filter at the input stage of the mic pre to cut out the low frequency interference you often get with a great mic on a mic stand. Why doesn't every mic pre have one?

The compressor worked wonders on a few tired old loops from an S950 on the session in question. In fact, by the end of the day almost everything had been processed through the VC3Q – it's so usable!

The Meequalizer, which is pre-insert, is also very powerful. It's a phase-correcting EQ, a concept with which few of us are that familiar, but it sounds great and does what it says on the tin (or chrome in this case). The HF boost/cut works at 8kHz and brings out presence in vocals beautifully. You do have to keep an eye on your levels, though – these boosts do *boost*. Used subtly though, they can bring out the best and get rid of the worst parts of whatever you are treating. It is also nice to see that the controls read LF, MF and HF (rather than HF, MF and LF as on the VC6Q).

## Verdict

This unit is really a slightly less flexible VC6Q. It's amazing what you can get for a few carefully thought-about sheckels nowadays, and it's essential to have this kind of processing available when recording digitally. Analogue is very forgiving and tape can often sound even better when you do things wrong. Not so digital. A little character and even a little distortion go a long way towards making a lively recording. But don't buy a standalone channel without hearing it, even if you have got a lot of wonga to throw around. The VC3Q sounds distinctive, and things recorded through it sound 'proper'. A hi-pass filter would be a useful addition, and a chunky XLR socket, but those omissions would not stop me buying one. Excellent value for money.

***More from: Joemeek, Quay House, Quay Rd, Newton Abbott, Devon TQ12 2BU***
***Tel: 01626 333948 Web: www.joemeek-uk.com***

## specifications

**Frequency range**
10Hz to 50kHz

**Inputs**
XLR (floating balanced), 1/4" jack (unbalanced), 1/4" jack Mix In (unbalanced)

**Outputs**
Dual 1/4" jack line outs

**Compression ratios**
1.2:1 to 7:1

**Attack**
1ms to 11ms

**Release**
125ms to 1.5s

**HF EQ (fixed)**
16dB cut/boost at 8kHz

**MF EQ**
16db cut/boost at1.8kHz (peaking control with Q = 1)

**LF EQ**
16dB cut/boost at 80Hz (fixed)

**Noise**
125.5dB below input 20Hz to 20kHz

# SPL Channel One

## Dedicated recording strip

**Price** £1,169 ⓘ Optional digital converters £TBA
**For** Idiot-proof functionality ⓘ Built-in headphone amp ⓘ Good balance of facilities
**Against** Limited control of compression ⓘ Knob legending too short
**Verdict** Quality channel strip that has created its own niche, thanks to its integral headphone amp

The rack-mounted channel strip has become a firmly established item in the recording chain, especially as more and more people are recording directly to digital computer-based hard disk systems and need a quality front-end to make the most of the initial signal. SPL claim to have been a little ahead of the game with their EQ Magic unit of several years ago, but that unit doesn't really have all the elements that we have now come to expect in a channel strip. Their new Channel One, however, brings things right up to date and moves the game forward by cramming in everything you'd expect, and then some.

### Overview

Taking up two rack spaces, the Channel One is by all accounts a Frankenstein's monster of a processor, taking the best bits from the other units in the SPL range and combining them into a new creation. No ugly bolts through the neck and visible stitches here though – the various elements are seamlessly put together behind a logically laid-out and uncluttered front panel that inspires confidence in the unit.

All the switches light up when engaged, instantly displaying at a glance which of the Channel One's functions are active, while the knobs, some racheted, some smooth, all have a solid feel. The only niggle is that the white line on the knob cap isn't extended down to its skirt to take full advantage of the exceptionally neat and precise panel legending when recalling settings.

There are three analogue inputs to the unit: a high-impedance instrument input with a front panel jack socket, and round the back, a balanced XLR mic input and balanced jack line input. External equipment can be inserted into the signal chain via two more balanced jack sockets, and the analogue output is available on both XLR and balanced jack.

A huge blanking panel fills the rear panel space where an optional 24-bit/96kHz analogue to digital converter can be fitted if required, and in anticipation of the digital option being fitted, there's another input jack already present on the Channel One's rear. As the Channel One is a mono unit, this is to take advantage of the spare channel of conversion and utilise the unit as a stand-alone A-D and D-A converter.

One major difference that sets the Channel One apart from other channel strips is the built-in headphone amplifier with its front panel socket for plugging in the cans. This is for monitoring the signal through the unit, but can also be used to monitor any stereo source that's plugged into the rear panel left and right jack sockets which comprise the playback inputs. In this way, previously recorded sounds can be monitored while adding any new overdubs, with separate volume knobs provided for both the playback inputs and the signal passing through.

### Front panel

The Channel One is divided into six sections that are clearly delineated on the front panel. Topped and tailed by the preamp and an output section, there are de-esser, compressor and equalizer sections, each with their own switch to bring them into the signal chain, as well as the previously mentioned headphone monitor.

The preamplifier features a valve, which following the current fashion, sits glowing away behind its ventilation grille for all to see. Switches are provided for 48V phantom power, phase reverse and a high-pass filter that operates to reduce bass content below 50Hz. Separate gain knobs are provided for the microphone and instrument inputs.

Control of the de-esser intensity is taken care of by a single knob graduated from the off position at 0 up to a max value of 20. During sibilant events, this de-esser affects only the relevant part of the frequency spectrum rather than reducing the level of a broader band of frequencies as a compression-based de-esser would do. This circuitry scans the frequency spectrum,

words **Trevor Curwen** images **Gavin Roberts**

Channel One: Quality sound with a good range of processing types

homes in on the narrow band of 's' frequencies and feeds a phase-inverted version back into the signal path, thus cancelling out any sibilant sounds while leaving adjacent frequencies untouched. An auto-threshold is also featured, allowing constant de-essing regardless of input level.

Dynamics control is taken care of in the next section, which features not only a compressor and limiter but also a simple noise gate. In keeping with a minimal user interface, the compressor has program-dependent attack and release times and is controlled simply by one rotary knob graduated from 0 to 20 that simultaneously adjusts both threshold and ratio.

A separate switch turns on the limiter. Any gain lost through compression can be compensated for with the make-up knob, which can add up to 22dB.

Another single knob operates the noise gate, which features ARC (auto-release circuitry) technology, whereby the circuitry continually monitors the level difference between the audio signal and the threshold set using the knob. If a large difference is detected, a short release time is applied, with longer release times being triggered by smaller level differences, enabling the gate to accurately track fades and reverb tails.

The Channel One EQ section can be switched to be either pre or post the compressor section. The EQ has apparently been devised by SPL specifically for use with vocals and acoustic instruments and includes a distortion control intended for use on vocals. Three EQ bands are adjustable, with two being semi-parametric.

## Tone booster

The low band has up to 14dB of cut or boost available on a centre-detented rotary pot, while another rotary pot is used to select the centre frequency from a range that runs from 30Hz up to 720Hz. What SPL call the mid-hi band is similarly controlled by two knobs, this time with up to 12dB of possible cut or boost with the frequency knob spanning a range from 650Hz up to 13.7kHz. The third band (designated as the 'air band') is controlled by a single centre-detented knob offering up to 10 dB of cut or boost at the high end of the frequency spectrum at 17.5kHz. The distortion on offer is controlled by a single rotary knob graduated from 0 to 20 and utilises FET circuitry rather than valves.

Output from the Channel One is controlled by another centre-detented knob, which can cut or boost the signal level, matching it to the input of the next unit in the audio chain, and there is a linked mute button.

The headphone monitoring section has been included in the design to help combat any latency problems encountered with hard disk recording

## specifications

**Inputs**
Mic, balanced jack line input, instrument jack

**Outputs**
XLR, balanced jack

**Insert points**
Balanced jack

**Compressor**
Combined threshold/ ratio control, program-dependant attack and release

**Noise gate**
Program-dependant

**3-band EQ**
Mid-Hi ±12dB, 650Hz to 13.7kHz;
Low ±14dB, 30Hz to 720Hz
Air band ± 10dB, 17.5kHz

## The competition

With a price tag [illegible] the SPL unit seems to be in the mid-range of available channel strips, many of which have been reviewed in *The Mix* over the past three years.

Top of the heap among the British-built units at the moment has to be the Focusrite [illegible] Producer Pack ([illegible]) [illegible] Choice in *The Mix* issue 70. Focusrite were actually one of the pioneers of the concept with their Green series (the ones with a front panel resembling an aerial view of a golf course) but captured much of the popular vote with their [illegible] expensive Platinum series. The Platinum Voicemaster and Tonefactory (£399 each) are pretty much two sides of the same coin with the former being optimised for vocals and the latter for instruments, although both are adept at either task.

JoeMeek have also had this type of unit in their range for some time and have been continually upgrading their specifications over time. The VC1 studio channel has metamorphosed from having an onboard compressor and enhancer to the new VC1Q version (£54[illegible]) with the addition of a 'Meequalizer' EQ section and a de-esser. The VC3Q (£1[illegible]) and VC6Q (£349) are less expensive variations on the theme. Other home-grown units include the TL Audio Ivory 5051 (£469).

SPL are, of course, a German company, and not the only pro audio manufacturer in continental Europe. Mindprint, also German, produce the En Voice (£4[illegible]) and Denmark's Tubetech weigh in with the excellent valve-based MEC 1A (£1,795).

Across the pond, those Yanks have some choice performers, with the A[illegible] VT737 (£1,757) and the Manley Voxbox (£2,931) being particularly worthy of a mention.

Note the space for the optional digital [illegible] round the back of the Channel One

systems. The idea here is to use headphones to monitor the signal being recorded before it gets into the computer, thus avoiding any delay that might be added if the signal was monitored after having made the round trip through the computer.

## In use

First up the Channel One was put to use as the front end for recording vocals and instruments into Logic Audio running on a Mac, with a Digidesign Project 2 card and 882/20 interface. Now, the Project 2 has no hardware through connection, which means that any material being monitored from the 882's outputs as it is being recorded is subject to a latency delay, so the usual solution is to split the signal just before it enters the computer and monitor it at that point.

With the Channel One this is entirely possible without resorting to a splitter box or parallel sockets, simply by using both of the units analogue outputs; i.e. sending the output from the XLR to the computer while the output from the jack is used for monitoring.

Alternatively, using headphones, with a stereo output from the computer (with muted output from the track being recorded) fed into the unit's playback sockets for monitoring proved to be a great way of working, with the two volume knobs in the headphone section allowing a good mix of previously recorded and new signals to be quickly set up. The only drawback with this is that it's not possible to add any monitoring reverb to the signal being recorded. For anyone working on their own this offers an elegantly simple method of recording, allowing the work to be done without recourse to using a mixing desk and speakers.

Sound-wise, the Channel One has little to fault it. The preamp provides a clean, transparent signal of obvious quality both with mics and with guitars, bass and keyboards plugged into the instrument input. The de-esser is really quite unobtrusive in operation and, set around midway on its scale, achieves excellent results with none of the emasculated 'lispiness' that can result from overcooking it on some machines.

Compression is assured and workmanlike, ranging from a light touch to some real squash, and is particularly suited for use on vocals. The simplicity of turning just one knob to get the job done is quite appealing, and setting up for keeping signals in check while recording couldn't be easier. But anyone wanting to use the compression for effect may be disappointed by the lack of any envelope controls. The noise gate is rudimentary with the limited range of usefulness associated with a single control, but given the right kind of signal and a little patience in setting up, it can be a quite effective tidying device.

No problems whatsoever were encountered with the EQ section. The air band control is effective in not only adding a bit of high-end sheen, but also in reducing unwanted hiss on some sources. The amount of control available from the other two bands is impressive with plenty of scope for both subtle shifts of emphasis and more extreme stuff, and the chosen Q values sound very natural. Up to about the halfway mark the distortion control adds a nice bit of enhancement to vocals; beyond that, the sound veers towards a buzzy distortion with the intensity dependent on the sound/instrument fed into it. It's capable of sounding unpleasant or adding some edge to the sound, depending on your perspective.

## Verdict

The Channel One has much in its favour. There's no doubting the quality of the sound, and all the relevant types of processing have been included. The presence of automatic control of certain aspects of the Channel One's processes does raise another point, however. While it makes for an uncomplicated user interface and an ease of use that is painless for both the novice and the more experienced user, there will be some who yearn for more control in some departments, particularly in compression, where more flexibility could be achieved with separate ratio, threshold, attack and release controls. On the whole, however, the Channel One offers a good balance of processing that can tackle a wide range of tasks.

The inclusion of the headphone monitor is inspired, and for anyone sitting down composing and tracking by themselves, a combination of a fully-loaded computer, a set of headphones and a Channel One would make a simple and compact studio set-up.

***More from: Pure Distribution, Stirling House, Kimberley Road, London NW6 7SF Tel: 0171 624 6000 Web: www.stirlingaudio.com***

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# Yamaha D24

## 8-track digital recorder

**Prices** see box
**For** Excellent build quality › Superb sound › Ease of use
**Against** Restrictions imposed by format › Price
**Verdict** An excellent alternative to modular digital multitracks

Since the introduction of MDMs (Alesis and Tascam Modular Digital Multitracks), the recording industry has developed, and then fractured into, two very well-defined areas. Some people have opted to embrace and stay loyal to the self-contained linear environment that tape-based MDMs impose, while others have taken the sometimes precarious route of computer based direct-to-disk systems.

Every now and then companies such as Akai have ventured into the world of standalone direct-to-disk recorders with devices such as the Akai DR8 or DR16 offering eight and 16 tracks respectively. Although reliable and efficient, they haven't really caught on in the same way as computer-based systems have, and they haven't successfully challenged the MDMs.

For the most part the major manufacturers have focused their direct-to-disk aspirations towards the complete digital portastudio, and sensational though these products are, they do not effectively challenge the professional market.

## Overview

Enter the D24 – Yamaha's first real hit at the MDM market, and most certainly aimed at the professional. It's an 8-track, direct-to-disk recorder. The D24 comes in a 3U case with all external connections on its rear and all controls and metering mounted on the front. Provision is made for the RC D24 Remote, which facilitates the control of multiple D24s with ease, rather like Alesis' BRC. It's a useful addition but not essential in the operation of the D24, as the unit itself has an enormous amount of control available directly from the front panel.

For storage Yamaha have chosen the magneto optical format which, for those of you who haven't come across it before, is in small 3.5" cartridges. They are reliable, resiliant and cheap (although their capacity is a little small for our liking) and available in two sizes – the largest being 640 Mb, allowing 15 minutes of 8-track audio at 16-bit/44.1kHz (more on this later).

The front panel is extremely well laid-out. On the left we have the metering for the eight tracks with record status, then the SMPTE display showing absolute timing. Below that is the song title, locate position, sample rate and synchronisation condition. The display is bright and vivid – everything's clear and easily legible at a distance under any lighting conditions, which is a vast improvement over the less-than-exciting display found on our ADAT XT.

Below this are the eight track selector buttons plus the eight solo selectors. Moving down from these we have five buttons for peak hold metering, auto-input, all-input, format and chase synchronise. Next to this is the numeric keypad with the locate functions and project selection keys, and to the right of these is the very chunky jog/shuttle wheel. This is in fact two controllers, having the alpha dial in the centre and the jog/shuttle on the outer wheel. This doubles as a means of data entry.

Above this we have the nine all-important function buttons. The first of these is the capture button, which will grab positions when in motion or parked, then we have the time display – absolute time, time remaining and so on, followed by vari-speed, virtual track, edit setup utility, undo/redo and virtual track select – we know this sounds a bit dull, but some of you are going to want to know what all those buttons do!

Last of all (phew!) we have the transport controls and drive slot for the magneto optical drive. All the usual functions we have come to expect with this type of device are here, with loop from last drop in, repeat, play from, and so on.

And looking round the back we see the D24 is as well-specified as the front panel would suggest. Along the top we have video coaxial sync input with 75ohms terminator followed by coaxial word clock inputs and outputs, followed by the obligatory MIDI in/out and thru sockets. Next to these we find a 50-pin SCSI 2 connector followed by a 9-pin serial I/O connector, a 15-pin sync out and a 15-pin remote sync in socket.

Below these we have balanced timecode I/O on XLR sockets and S/PDIF I/O. Next to these are the IEC

### prices

| | |
|---|---|
| D24 | £1,999 |
| MY8-AT | £199 |
| MY8-TD | £199 |
| MY8-AE | £199 |
| MY4-AD | £199 |
| MY4-DA | £199 |
| MY8-AD | £249 |

words
**Adam Fuest**
images
**Gavin Roberts**

D24: Hard-disk recording with that plug-and-play vibe and a huge amount of front panel control

mains socket and cooling fan. All that we have just described comes as standard and, as such, represents great value as many manufacturers would have cheekily charged extra for many of these features.

To the right of the main socket we have four expansion slots, and those familiar with the Yamaha 03D or 02R will recognise these, for they are in fact designed to take the shorter versions of the expansion cards designed for these consoles. These slots provide the user with the option of almost any interface imaginable for the D24 – for instance AES/EBU to XLR and ADAT to TDIF.

## Bits, rates and recording

The D24 uses no audio data compression and is capable of outputting eight tracks simultaneously with a choice of 16, 20, and 24-bit resolutions. The D24 also lets you choose from industry-standard 44.1, 48, 88.2 and 96kHz sampling rates.

Each track features eight virtual tracks (making 64 virtual tracks) of recording to provide for additional flexibility when laying down and selecting takes or creating alternative arrangements. Recording, as mentioned before, is primarily to MO disk which has only a 640 Mb capacity. This should be sufficient, we imagine, for most users, but when looked at closely the recording times available are perhaps a little short. For example, eight tracks of audio recorded at 44.1kHz in 16-bit format will give you a maximum capacity of only 15 minutes of track time which, for a product that is so professional in its construction and performance, and thus perfectly suited to location work, is a little disappointing, to say the least.

Two or more units can be linked together and offset as with ADAT or DA88, but they are of course capable of recording continuously for at least 40 minutes before even having to contemplate doing such a thing. And it doesn't stop there. Eight tracks at 24-bit/44.1kHz reduces the magneto optical capacity to 10 minutes, and if one was being really fussy, to record at 96kHz in 24-bit format you would be forced to work on only four tracks and have only nine minutes available to record on! One feels that maybe Yamaha have pushed themselves into an awkward position with that one.

We can't help feeling that maybe they would have been better off opting for a drive like the Jaz ADSG, which is now accepted by many as a reliable and accessible medium. There is of course the SCSI socket on the rear, but that has the added problem of introducing another piece of media into the storage foray that we are all having to come to terms with these days.

Storage gripes aside, in use we found little else to complain about. Although converts to

### The hard line

With more and more devices like the D24 arriving on the scene, the demise of tape-based recording may be imminent. Many musicians have computer-based set-ups at home, but unless you start to spend serious money, a professional non-linear system is out of bounds. And the pro studio has always had a dilemma as to which direction to go in as they watch the value of their considerable investment in analogue equipment diminish to unrealistic levels. It is for these studios who still offer a quality analogue environment but are not in the league of spending £10-20k on a Soundscape or Pro Tools system that the D24 will really excite – it will complement this environment far better than any previous MDM.

## specifications

**Medium**
3.5" MO disk (max. 640Mb)

**Bit depth** 16, 20, 24-bit

**Sampling rate**
44.1, 48, 88.2, 96kHz

**Track format** 8 tracks, 64 virtual tracks

**Varispeed**
6% jog/shuttle play

**I/O expansion slots** 4

**Optional cards**
MY8-AT (ADAT)
MY8-TD (Tascam)
MY8-AE (AES/EBU)
MY4-AD (XLR x 4 in)
MY4-DA (XLR x 4 out)
MY8-AD output

**Control/sync**
In, out (15-pin D-sub)

**Timecode**
In, out (XLR)

**MIDI**
In, out, thru, MTC, MMC

**Wordclock**
In, out (BNC)

**V-Sync**
In, out (BNC) video chase + thru out

**SCSI-2** In, out

**S/PDIF** Coaxial I/O

**Remote (RC-D24)**
Multiple unit chase (up to 8 units)

**Dimensions**
480 x 144 x 384 mm (3U)

computer-hosted recording, we found the D24 logical and fast to use with all the flexibility one needs or expects from a direct-to-disk system. It's easy to slip, copy, bounce and generally move audio about the way we all like to these days.

The jog shuttle is excellent, which is more than can be said for many of the systems out there at the moment, most of which emit a groaning sound akin to the voice of the Lord of Darkness awakening from a five-thousand-year slumber with a serious hangover, but resembles little to do with the actual audio one is attempting to edit. Maybe it's just the machine laughing at you backwards!

Routing to the headphone socket is done so that odd numbers equal left side, even numbers equal right side, and combined with the multiple scrub speeds we were right in there in seconds, editing on the frame. The track solo function is also active within the headphone output and this further adds to the ease of editing that the D24 provides.

Unfortunately, during the review period it was not possible to run the D24 within a multiple D24 setup or with the remote. However, one can only suppose that without the hindrance of tape lock-up with its accompanying rattling transport, the response within a multiple system should be no different. There was very little mechanical sound generated by the D24 and this should win many friends in the field of classical and location recording, although one is still presented with the unfortunately short recording time available. If anything is going to colour opinions on this device, it is the issue of storage.

## Verdict

The Yamaha D24 is without doubt one of the most rugged and professional pieces of equipment we have come across in quite some time. It's so obviously designed for the professional to use in a high-pressure, professional environment where the extra facilities of some systems are sacrificed for the need to have rock-solid, no-nonsense high-end performance.

We feel sure that post production houses are going to love the D24 – it's what they have been waiting a long time for, and one will expect to see a few D88s knocking around the second-hand markets - this goes without saying. But for the project studio, with its very different demands, the criteria with which the D24 is judged will be quite different.

The cost of the basic machine, plus the cost of the additional cards puts a 16-track or 24-track system up into the £6,000+ market, and at that point we are presented with the choice of some very serious kit indeed which, if allowed to stay within the protected environment of a project studio, will last maybe not as well as the D24 but certainly long enough! But if you love the 'plug and play' nature of ADATs and other MDMs and want to make the jump to hard-disk recording – or wish to supplement your existing MDM system with such a facility – then this could well be the box for you.

***More from: Yamaha-Kemble, Sherbourne Drive, Tillbrook, Milton Keynes, Buckinghamshire MK7 8BL***
***Tel: 01908 366700 Web: www.yamaha.co.uk***

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*PC Plus Awards, February 2000

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# Music sounds better with 'Q'

It's funny how fashions in music come and go. When producers discovered how to create a flanging effect using two tape machines way back in the mid-'60s, they probably didn't realise that it would become so popular and end up in a digital effects box some years down the line. In fact, every era of recorded music has been accompanied by distinctive sound effects of one type or another, and although it seems unlikely, you never know when big gated reverb (for instance) will make a comeback.

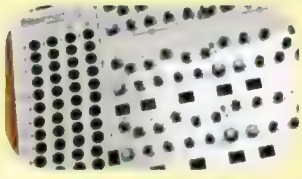
For the last few years, the predominant sound in recorded music has been filtering – to the point where the music press have dismissively coined the phrase 'filter disco'. Of course, there have been other, equally important developments – such as the ability to retune vocalists with dodgy intonation – but ask anyone who's familiar with a Fatboy Slim record which bit they like, and after they've told you the six or so lyrics, they'll say 'the bit that starts muddy and gets brighter'.

What seems strange is that it took so long for filtering to become so widespread. If you're familiar with The Who track 'Won't Get Fooled Again' then you'll have heard the sound of an electric organ going through an EMS synth filter with sample and hold creating random cutoff frequencies. But that was on a record made almost 30 years ago. Even before that, people such as Jimi Hendrix were creating impressive sounds with the simple peak EQ effect of the wah wah pedal. Similarly, a Chicago trio called Phuture discovered the resonant absurdity of Roland's TB-303 in 1987 and consequently defined the sound of acid house with 'Acid Trax'.

So although these sounds have been possible since the advent of subtractive synthesis, their recent increase in popularity must have been due to some other factor. Unquestionably, this has been the rise in programmed music, and dance music specifically, coupled with increasingly affordable and flexible sampling. Although early samplers featured filters, they were often basic and unresponsive. As technology caught up with the demands of users, people started to rate samplers on the basis of their filters (E-mu's E4, for example). Digital filtering is no longer considered the poor cousin of analogue, and a quick look through the adverts in this magazine will reveal a whole host of digital synths quite successfully modelling the analogue sounds of yesteryear.

Strangely, of all the units covered in our *Filters Roundup* (p. 54), only Electrix' Filter Factory is digital – all the others fly the analogue flag. Maybe not so surprising is the fact that low-pass is the most commonly-used effect, closely followed by high-pass, band-pass and notch. On balance, it would seem that the effect of a rising low pass filter is the one music makers most commonly go for.


**Sherman QMF p.50**
From the makers of the acclaimed Sherman Filterbank comes the most extreme filter of all time. *Adam Fuest* attemps to take control



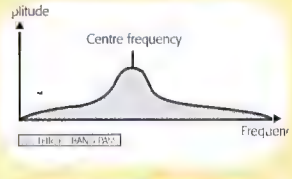
**Hardware Filters p.54**
You just can't beat a standalone filter for hours of hands-on studio fun. *Jon Musgrave* rounds up six of his favourites

**Software Filters p.60**
Software filters give you great value for money and the ability to save those 'inspired moments'. *Sean Vincent*, *Seb Pecchia* and *Dave MacDonald* check out six of the best

**Buyer's Guide p.62**
Information overload? Check our summary of all the filters on test in this issue, and find out where to buy

**Filter Tips p.54**
*Phil Strongman* takes you through his favourite filtered moments on record... will *your* favourite make an appearance?

**Filter Types p.59**
If you're a little rusty on all those filtering terms, here's a brief refresher course. By *Jon Musgrave*




**D.I.Y. Filter p.65**
Got a soldering iron and a few spare hours? Then why not have a go at building your own hardware filter? *Geoff Waterston* shows you how

**Kojak p.70**
Meet the funky French trio who told us that their favourite effects are... filters (of course!). *Oz Owen* reports

***Thanks to Alan Branch, Adrian Sherwood and Simon Mundey for their assistance in compiling this Filtering Special***

# Sherman QMF

## Modular desktop filter

**Price** £2,349

**For** Four of the most wicked filters money can buy › Built like a tank › Flexible

**Against** No memories › Only 100 in the world

**Verdict** You know you can't live without it, but you'll probably have to!

When the Sherman Quad Modular Filter Bank – or QMF to its friends – arrived at *The Mix* office, there was a clamour of excitement and a hoard of eager hands wanting to get hold of it, and yours truly was the lucky devil who was able to take it home and live with it, play with it and muck about with it.

'So', you cry, 'what is a filter bank, anyway? And what's so exciting about the QMF?' Filters aren't a new thing to audio and many people make the association with synthesizers, but every time you reach for an EQ pot on a desk or a plug-in, tweak the EQ in Logic or VST, or kick in a wah-wah pedal you are, in fact, using filters of sorts.

Obviously the type and quality of filters varies dramatically, and the modern filter has taken on two distinctive forms. Firstly, as an equalizer in the audio path of most mixers and amplifiers, where they provide the ability to cut or boost the audio signal at various frequencies, thereby enhancing the tonal character of the audio. The second use is within synthesizers, where one will find a very different animal altogether.

The synthesizer filter has become an equaliser capable of manipulating the signal from (primarily) an oscillator or from an audio sample and, with the use of feedback loops, band-pass filters and envelopes, totally remodelling the original signal. For many years people have been putting audio signals into the backs of old synths and generally mucking about with them – one need only listen to old Roxy Music and Led Zeppelin albums to hear what was going on.

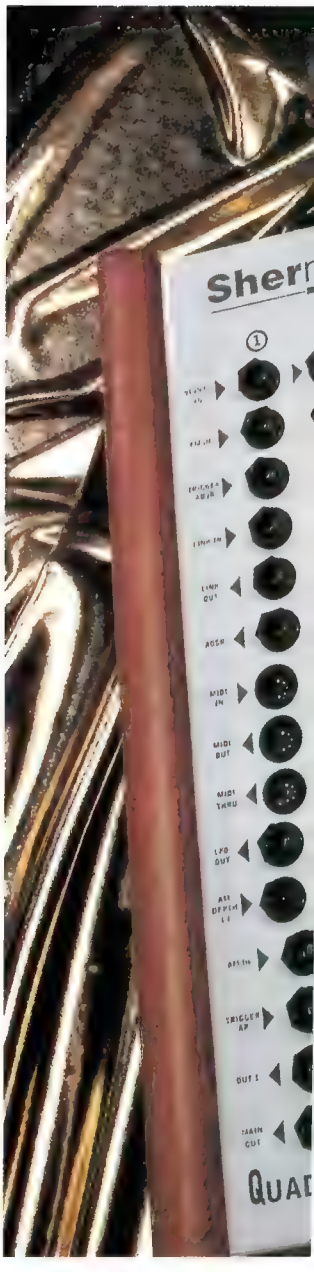
If there's a sound on these albums you can't understand or emulate, you'll probably find it was created in part with a synth filter. And what do we learn from this? For those of you who may not be into dance music, lo-fi or big beat, do not rule out tools such as these! Putting a bass guitar or a vocal through a synth's filter can be an incredible experience.

So, what's the big difference between the QMF and an Arp Odyssey or a Pro One? Well, fun though those instruments are, they are actually synthesizers, so to a certain extent one is usually limited as far as facilities are concerned. The QMF, on the other hand, is designed to be everything but a synthesizer. For those who aren't familiar with it, we shall briefly cover the piece of studio gear that gave birth to the QMF: the Sherman Filterbank.

### Original style

The original Sherman Filterbank was designed to fit a 2U rack space. Now around four years old, it has found favour with many illustrious users, including the Chemical Brothers, U2, Apollo 440, Andy Gill, Jamiroquai and Adrian Sherwood. Along the back it has connections for signal input, FM and ADSR trigger inputs, link in and out (to facilitate the use of multiple Filterbanks), plus MIDI in, out, and thru, amplitude modulation input, trigger out and finally, output one and main output. These are basically mix and effect and effect only.

Along the front panel we have controls for the following: two independent low, band and high-pass filters with resonance, frequency and ADSR controls, which are switchable between parallel or serial operation. The second filter has a six-octave switch, and is synchronisable with the first filter. There's also one ADSR generator for these filters with an external output for use with more Filterbanks or modular systems, one FM input for the filters – internal or external audio can be used as a source – LFO or CV, one VCA overdrive with AR generator and one ring modulator. This may all be a bit of a mouthful, but to have such facilities from a synth would require one hell of a machine.



### CD info

**tracks 3-4**
Sherman's very own demo for the QMF. Funky rhythm guitar and drums get that filtered treatment

words **Adam Fuest** images **Gavin Roberts**

Successor to the acclaimed Sherman Filterbank, the QMF takes filtering to new

## Overview

So now we've covered that, let's move on to Sherman's latest monster. The QMF, unlike the original Filterbank, is not rack-mountable. It actually measures just over 21", which means it doesn't fit comfortably anywhere in the average studio. This is just fine, because that way it will stick out like a sore thumb, so everybody will notice it and say 'Wow! You have a Sherman QMF – cool!'

The truth is that it is, and you will be. So not only is it too wide but it's also 16" deep, with retro-inspired wooden side panels. Down the left-hand side of the unit are found all the input and output sockets for each channel, and to the right of these are the four (near) identical sets of controls for the QMF. These are, in fact, four Filterbanks in their entirety, complete with all physical inputs, outputs and triggers, and of course those lovely little link sockets so all four Filterbanks can operate independently, or they can be chained together for serious action – giving up to 96dB filter slopes!

There are some subtle differences in the units. Units three and four each have six additional switches, and these are as follows: Bright boosts high frequencies at the input. The next switch is Limit, which clips input signals at a lower level. Therefore, setting the input level extremely high will not blow your speakers to bits – an interesting phenomenon which the novice can easily achieve.

Next we have the Slow switch. When engaged, the Slow position gives the envelope followers the characteristics of the original Filterbanks, whereas when Slow is switched out the envelope followers are five times faster. Octave simply doubles the centre frequency of both filters. »

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Ashley Sheinwald, student,
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**£349** FOCUSRITE EQ

## EN-VOICE
**VALVE VOICE CHANNEL**

ALMOST 45% OFF!

This channel strip accepts XLR mic, line or instrument level, and provides HPF at 50Hz or 100Hz, three band parametric EQ. The VCA compressor has a switchable sidechain HPF, and auto attack / release mode, with LED metering. Features post compressor valve makeup gain stage, for user control of colouration and even optional digital I/O. AudioMedia's David Mellor says "the sound is very, very good", whilst SOS's Hugh Robjohns says "the EnVoice is a particularly flattering and fine sounding processor." At this price, there's no excuse for not owning one - ***buy now while stocks last!***

RRP £499
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## In use

The QMF is one of the most interesting tools we have ever had the chance to work with and it is impossible to describe fully just how much this box can do for your music. In the week we had the unit in the studio it was used constantly. Whenever a particular sound or track was feeling a little lacking you could just plug the QMF in and fiddle.

The most important thing to do was to record whatever we did every time because it was nearly always useful. For example, a bass that was recorded via a preamp was sounding remarkably dull and lifeless within a track, but after putting it through the QMF, adding a little overdrive on the input, a *soupcon* of envelope, a touch of resonance and just a hint of LFO on a band-pass filter... Boomshanka! We had one grunting, snarling mofo of a bass with so much attitude it would bring tears to your eyes and ears.

Another example is when we were presented with a track to mix. What was really required was a drum loop, but unfortunately the rhythm track was not up to scratch, although it was well-performed and inspired. So out comes the QMF, in goes the drum ambience, and out comes this pumping, squelching rhythm-glue that fitted into the track like a hand in a glove.

On a vocal we were able to create a shimmering whisper that sounded as if it were going through some lo-fi Leslie. And as for the Triangle! If you mix, then this box is for you. And if you can't get the QMF, buy a regular Filterbank. This is an essential item already – and we haven't even got round to the external triggers and MIDI bits yet.

This mucking-around mentality is what the QMF is all about. If you visit their website (www.ping.be/sherman/) you'll find a list as long as your arm of addicted users in the 'Known Sherman Filter Bank Abusers' list. That said, you can be very sensible with the QMF and put dull digital keyboard parts into it, trigger it from the MIDI notes and enhance the hell out of it.

Got enough patch leads to cope with the socketry? No worries, Sherman supply ten of them with the QMF

There's four original Filterbanks in their entirety on the QMF front panel

Filters three and four have six additional switches, including the all-important Limit control

In this way it's possible to make a Korg M1 electric piano – possibly one of the most emotionally-destructive sounds known to man, in fact a sound responsible for such acute depression that it has been banned from all but the most Eastern of Eastern European studios – and make it sound like an overdriven Waldorf Microwave. Now that, in our book, is a gift to mankind.

On the downside, however, there's no form whatsoever of storing your patch other than using a pen and paper, which is strange. One would have thought that with such a retro bit of gear one would at least have cassette backup or something like that. Never mind – if you like what you create with this brute you'd better record it, because one twitch of a knob will have the QMF grunting and groaning off in another direction like some bad-tempered adolescent in a Cosworth, leaving skid marks on your tweeters and bootprints on your woofers.

## Verdict

Is there an alternative? Well, you could go out and buy half a dozen analogue synths, turn them on and leave them for a few days to get nice and hot and possibly stable (but there's no guarantee of that) and then fumble about with patch cords and MIDI-to-CV converters and DCB8 boxes – you might learn something about air conditioning while you're at it – but even then you won't be anywhere near reaching the potential of the QMF.

Simply put, there is nothing else to compare with the QMF. The bad news is that Sherman, in their infinite wisdom, have decided to make only one hundred of these naughty boxes available worldwide, so if you're up for one and have a couple of grand to spare, best get your name on the list ASAP, as this is undoubtedly the first major collector's item of the new millennium.

***More from: Funky Junk, 505-507 Liverpool Road, London N7 8NS Tel: 0171 609 5479***
***Web: www.funky-junk.co.uk***

## specifications

**Four Filterbanks, each with:**
Signal in
FM in
Trigger ADSR
Link In
Link Out
ADSR
MIDI in/out/thru
LFO out
AM depth in
AM in
Trigger AR
Out 1/Main Out

**Filterbanks three and four also have:**
1=Bright
2=Limit
3=Slow
4=Trigger
5=Sawtooth for LFO
6=+1 Octave

**Dimensions**
15 x 54 x 41 cm
(H x W x D)

**Weight**
9kg packed

**Each Filterbank features:**
2 independent lo-, band- and hi-pass filters with resonance, frequency and ADSR (positive-negative) controls (switchable parallel/serial).

# Round-up: Hardware Filters

**The filters we've tested here show how a simple concept can give rise to an amazing variety of designs. All these units have their own sound, and each one is best for a different application. But one thing they all have in common is the ability to transform audio in surprising ways. In the future, digital software-based designs will inevitably become more and more dominant thanks to their ability to be automated and saved. But if you're after a quick and unexpected result, it's difficult to beat a standalone box.**

## Mutronics Mutator
### MIDI £560, non-MIDI £500

Now four years old, Mutator is a pretty well-established filter amongst this group. It is essentially two separate low-pass voltage controlled filters (VCF) offering 24dB/octave slopes, with variable LFOs and a voltage controlled amplifier (VCA) output stage. It comes in both non-MIDI and MIDI spec'd versions. The controls are laid out in a logical manner, with the top row controlling channel one and the bottom row, channel two. The controls are split into three main sections to control the envelope, LFO and filter respectively. The envelope is quite basic, offering attack, release and threshold sensitivity controls rather than the full ADSR. However in mitigation, there are external control inputs on the back should you find a suitable envelope characteristic you want to track. In addition, the envelope has two modes: gate and envelope. The difference here is that the former activates the envelope fully when the threshold is reached, and the latter tracks the signal closely, giving variable voltages to the filter. Four types of LFO are available (triangle, square, ramp up and ramp down) with rate variable between 0.1Hz and a healthy 100Hz.

One of the great features of the Mutator is that the two channels can be linked in both a normal and inverse manner. This allows a single input (with input two not used, input one is normalled to input two), to give rise to some seriously psycho-acoustic stereo effects. Another nice touch is that the filter quite easily goes into self-oscillation when the resonance is cranked up. Combined with the cutoff and LFO, this allows you to create some pretty cool noises without an input signal at all.

The sound of the Mutator is very smooth and Moog-like in character, and because of the clear layout and good- sized control knobs, its simple and creative to use. This, combined with its solid build quality, makes it the Rolls Royce of the filter brigade.

## Electrix Filter Factory £360

The new kid on the block of this particular selection is also the only one that is non-analogue in design, but don't jump to any conclusions about its performance. This is one serious filtering tool that offers stereo operation at 12dB/octave or mono operation at 24dB/octave. It has four filter types (high-pass,

## Phil's Filter Tips **Favourite filtered moments on record...**

### BOB MARLEY VS FUNKSTAR DE LUXE 'Sun Is Shining'

A posthumous spring 2000 chart smash that gives us, right after the two-minute mark, a few moments of subtle fiddling at the low-pass end of things before the whole piece filters right down for the instrumental break then, half a minute later, filters right back up again. Lyrically this is quite a poetic song, no doubt written after Bob used up a few (cardboard) filters of his own.

### EMBRACE 'Save Me'

This single, the third from the new *Drawn From Memory* album, is so damn hot it hasn't even been released yet, but the guitar band – and producer Tristin Norwell – still do some weird and wacky things to the flute on the intro, breaking it up into nice crunchy pieces courtesy of a Sherman Filterbank and some Lovetone pedals.

### PRODIGY 'Climbatize'

Keith Flint and co haven't spent all their time smacking up bitches – and Marilyn Manson – and here's the living proof: some nasty little guitar synth stabs that start cutting up your ears at the 69-second mark. Comes on like a 1997 homage to The Who's 'Won't Get Fooled Again' and all done with mirrors and a hi-pass filter...

### BASEMENT JAXX 'Red Alert'

The club anthem that put the Jaxx on the dancefloor map – and they did it with the aid of some blurred low-pass tricks during the intro and some manic band hopping during the breaks – creating a very strange range of sounds, blowing through your mind like a portable radio on a windy day.

low-pass, band-pass and notch), four LFO types (ramp up, ramp down, triangle and square), a random LFO and a basic envelope follower. However, not content with just the filtering facilities, it also has an adjustable distortion section immediately after the input and a number of cleverly-designed 'single shot' buttons. The MIDI spec is also a bonus, as each knob and button sends out data, allowing you to record your moves on the fly and then play them back. As the unit is designed with DJs in mind as much as studio users, connections are on phonos (switchable between deck and line levels), and jacks. There is also an FX mix control at the output.

In many ways, the Filter Factory belies its digital design and sounds very analogue. In fact some of the results you achieve just wouldn't be possible with an analogue filter, and when it goes into self-oscillation, which it does quite easily, you'd better keep your hand near the speaker volume, or you might be buying a new pair of monitors. As you will appreciate, this is a compliment when it comes to filters, and the overall effect of this unit, (especially when you get the distortion going) is very pleasing. On the construction front, it's compact, rugged and very easy to use, plus it's not exorbitantly expensive, all of which add to it gaining a major thumbs-up.

## Sherman Filterbank £500

Of the filters on test here, the Sherman is probably the most complex and flexible. It has 24 knobs and one switch on the front, and ten jacks and five MIDI sockets on the back. However, beneath the 'hands-on' feel of the unit is a cleverly-designed dual filter. The filters are adjustable voltage-controlled 12dB/octave affairs that can be made to act as low-pass, high-pass, band-pass or anywhere in between by adjusting two pairs of rotary controls. It is possible to run both the filters in sync to achieve a 24dB/octave characteristic, or select a harmonic setting whereby the second filter's frequency is related to the first's. In addition, the filters can both be modulated equally by using the FM control. There is one LFO, which is a sine wave, but it goes up to an impressive 3kHz. The envelope can either be a full-scale ADSR (all adjustable), or an envelope follower-type, and the input stage can be overdriven by using the second half of the input gain.

There are two VCAs, which are controlled by their own attack/release generator, and to make things a little more interesting, there is an AM control that allows the second filter to affect the VCAs as well. To round things off, the Sherman has a good selection of outputs and inputs. The ADSR/envelope, FM, AM and AR generator can all be controlled by external audio or CV/gate signals. As well, there is an ADSR output, a main output, and a separate out for the first filter (which, when used, usefully cuts filter one from the main outs).

As previously mentioned, there is MIDI in/out and three thru sockets. The Sherman's main parameters respond to MIDI controllers, including cutoff, resonance and the ADSR, but unfortunately it sends out very little in the way of MIDI information, and doesn't do system exclusives.

Of the units tested here, the Sherman definitely achieves the most aggressive sounds

### STARDUST 'Music Sounds Better With You'

One of the things that made this *the* summer of '98 song was an audaciously long vocal break that kept a low-pass filtered beat going on in the background. Halfway through, a slightly less muted hi-hat joins the near-subliminal rhythm and after 45 seconds the whole track kicks back into pump-action dance overdrive. This manoeuvre is almost certainly being built into expensive mix mastering software as we speak.

### PHATS & SMALL 'Turn Around'

The massive – sorry, I really should have said 'phat' – tune of the last summer of the last millennium, again using and abusing a cunning low-pass after around the two-and-a-bit minutes. In this case, it was Novation's BassStation filtered through an S3000 with the filter expansion board fitted, but these days, says Jason 'Phats', "we are fucking around with the filter on the Focusrite ISA430 Producer Pack. We also like Benson and Hedges Special Filter."

### FATBOY SLIM 'Gangsta Tripping'

A slick low-pass sweep briefly leads one of Mister Zoe Ball's more monotonous tracks into a whole other world of feel-good uptempo reggae. The sense of relief this engenders is so huge it can probably be measured on a Geiger counter, making it such a nice trick that sly Boy Slim just can't resist repeating it – never trust a Housemartin.

### DAFT PUNK 'Revolution 909'

It's four years since those not-so-daft punks issued the Homework CD that bore this classic filter thumper. Starting with that club-with-the-doors-shut sound, while the vocal samples sketch out the audio anatomy of a police riot, the turbo bass then gradually shrinks away as the swept hi-pass sweeps in. There's another 20 seconds of mayhem and we're down to 'tssk tssk' noises before, on the minute mark, the revolution really starts.

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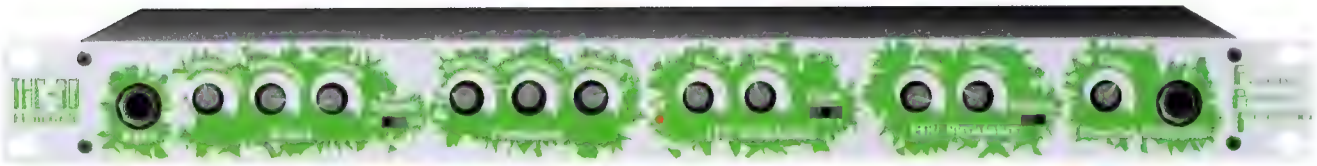

as well as some crazy modulations, thanks to the fast LFO available. With two outputs connected, it is quite easy to get strange, out-of-phase effects. If there's one major criticism it's that the tiniest tweak of a knob can have a dramatic effect on the sound, so you have to be very careful when using it. One other thing is that although the filters will self-oscillate, they don't sound great when they do. All in all though, it's a very capable sound-altering tool.

## FAT Resinator £170

The FAT Resinator, apart from being the most garish-looking filter on test here, differs from the others in one fundamental way. Instead of being a mono or stereo filter with variable resonance, it parallels the mono input to three vactrol band-pass filters with variable frequency, but a fixed high resonance. The signal is then modified by two slightly different speed sawtooth LFOs, three envelope followers and spread across a stereo output. There is no MIDI control, although an external signal can be connected to modulate the band-pass frequencies.

On the face of it, the Resinator appears to be a rather strange design, and its labelling is certainly novel (the resonance control is actually a wet/dry control). However, the concept of splitting the signal into three and processing it in three ways works well. Maybe it is a shame that there is only one set of LFO and envelope controls. For example, in LFO mode three, LFO1 controls band 1, LFO1 inverted controls band 2 and LFO2 controls band 3, but rate and depth for everything is controlled from two knobs. Even so, the stereo effect of this is rather impressive, and also quite unpredictable, which is great if you're looking for new effects.

As you may expect from an analogue processor, some serious low and high frequency extremes are possible. Given that the resonance of the filters is quite high, some care needs to be taken when using the Resinator at high volume. It is quite easy to produce absurdly high-energy low-frequency signals, just by twisting a few knobs, so be warned. On the downside, the Resinator is flimsily constructed, and feels like it may not survive regular abuse. Nevertheless, if you're trying create some psycho-acoustic effects from a mono source, it is easy to use and won't break the bank.

## MAM Warp 9 £200

The Warp 9 comes from the same manufacturer as the FAT Resinator, and is also a fully analogue filter. However, in this case it is a MIDI-controllable VCF, and features a single 12dB/octave resonant filter similar in sound to the Wasp synth filter. The filter can be set to low-pass, high-pass, band-pass and notch, and surprisingly, of the units covered here, it's the only one that has any kind of user memories (32, to be precise).

The Warp 9 also features a fully-adjustable ADSR envelope that can be triggered by the input or via MIDI, and has a number of different triggering modes (every trigger, every other trigger and so on). The LFO spec is also rather impressive, with four basic waveforms (triangle, saw up, saw down, square) supplemented by sample and hold, and a number of sample waveforms that track triangle and square waves. The LFOs can also be set to follow MIDI clock. To round things off, there is also a basic distortion effect which is either on or off.

As with any unit that tries to cover many bases, the Warp 9 can be slightly awkward to

# Phil's Filter Tips cont...

### LEN 'Steal My Sunshine'

The title reads as if it was the kind of thing that Bart Simpson might shout at you ('Steal My Sunshine! Eat My Shorts!') whereas Len's finest hour – well, finest four minutes – actually employs a discrete filter effect that sweeps back and forth across the entire outro. 'More! More! More!' as Andrea True Connection might well have said before Len sampled their bass and cowbell riff.

### SCANTY SANDWICH 'Because of You'

After just lucky seven seconds the band pass action squeezes the guitar so severely the poor thing ends up sounding like a wet wah-wah desperately trying to escape from a metal spring factory. And then some lunatic at the console starts trying to kybosh the keyboards while simultaneously strangling the vocalist and things begin to get really weird – get to it while it's still legal...

### MANIC STREET PREACHERS 'If You Tolerate This Your Children Will Be Next'

Everyone thought that distinctive 'neeeooow' sound that runs through the verses was one fucked-up guitar, but producer Dave Eringa went on record to set the matter straight. "It's actually a Wurlitzer electric piano put into my Korg MS20, distorted beyond all piano-ness and filtered live using both the low and high-pass filters, with resonance set really high to get that extreme distortion", he said. And there you have it.

### CHEMICAL BROTHERS 'Hey Boy Hey Girl'

The Chem Bros are another bunch of hardcore Sherman Filterbankers – that isn't Cockney rhyming slang, by the way – and they've already bagged the brand-new Quad version reviewed in this issue of *The Mix*. On 'Hey Boy Hey Girl' they go for an effect that comes on like the Sherman's tank namesake. Listen for the OTT way the low pass churns things up halfway through – 'chemical' is the right word.

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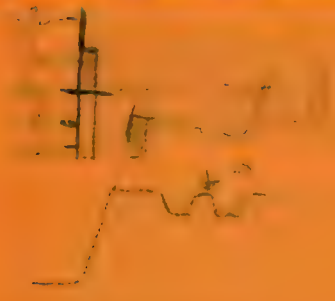

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use. This is partly because the LFO and envelope parameters are accessed via five multi-function knobs, which access three different sets of parameters. Thankfully, cutoff, resonance, envelope level and trigger level have their own set of knobs. Although the unit features user memories, again the implementation is a little clumsy. There are two banks of 16, indicated by four LEDs and an A/B bank LED (so you'd better put your binary head into gear).

Unfortunately, it's a similar story for setting MIDI channels. However, once sorted it does send ten parameters from the knobs, and responds to 14, which isn't bad going.

Although the Warp 9 won't go into self-oscillation, the sounds it produces are pretty good, and it is very nice having some memories. On occasions, it proved to be a little unstable, and it shares the lightweight build quality of the FAT Resinator. If you're a hands-on kind of user you may find the control system a little frustrating, but if you are willing to persevere it can produce some good results.

## Big Briar Moogerfooger £200

The Moogerfooger low-pass filter is one of three Bob Moog-designed, analogue pedal effects, the others being a ring modulator and a 12-stage phaser. On the face of it the unit appears pretty straightforward, although it is housed in a rather stylish footpedal, complete with wooden side panels. It offers 2-pole (12dB/octave) or 4-pole (24dB/octave), operation with variable cut-off, envelope, drive, resonance and mix. However, in addition to the basic audio in and out jack, it features a number of control voltage inputs and one control voltage output. This means that you can use expression pedals or any other control voltage source to affect the cutoff, resonance, mix and envelope amount.

In addition, the envelope has a CV output that can be connected to any suitably-equipped voltage-controlled device. So in typical analogue style, a MIDI to CV converter would be needed to integrate this into a MIDI set-up if you so desired.

In practice, the Moogerfooger sounds very smooth, and quite easily goes into self-oscillation if you turn up the resonance. Of the units on test here, sonically it's closest to the Mutator, albeit with less controls. The drive control also allows you to overdrive the circuitry, which adds some subtle distortion. In practice the 2-pole setting achieves a brighter sound than the 4-pole, and the smooth/fast option on the envelope follower is a nice touch. Another nice touch is the 3-colour level LED, which gives you a visual indicator of how much distortion you are adding to the signal.

Overall, the Moogerfooger is a well-constructed and smooth-sounding filter, but it lacks some of the more extreme characteristics of other units covered here.

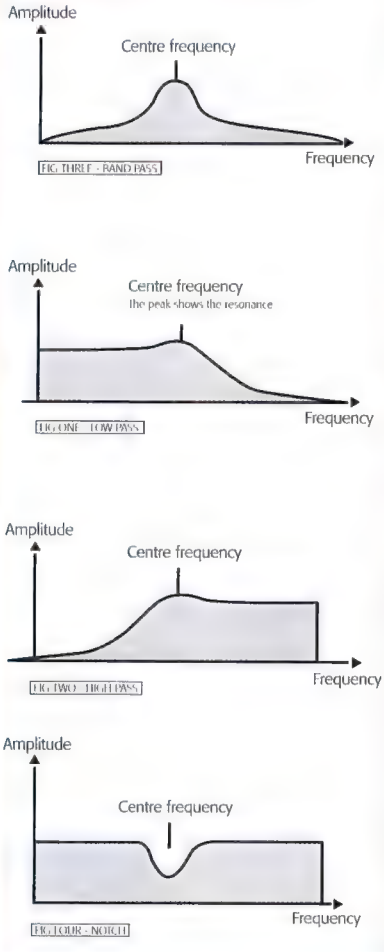
## Filter Types

The most common filter types are low-pass, high-pass, band-pass and notch. The low-pass filter (see fig.1) lets everything below the cutoff point pass through, and suppresses the frequencies above. Similarly, but in reverse, the high-pass filter (see fig.2) lets everything above the cutoff point pass through and suppresses the frequencies below. The band-pass filter (fig.3) has a central frequency and reduces the frequencies either side of it. Finally, the notch filter (fig.4) is a mirror image of the band-pass, reducing the centre frequency and letting the other frequencies pass through.

Additionally, by combining these basic designs, it is possible to come up with filters with more complex characteristics. Fortunately, the nature of analogue filters is imperfect, in the sense that frequencies above and below the cutoff points are reduced on a sliding scale rather than eliminated completely. In practice, this means that filters can have different cutoff slopes. The most common slope for audio filters is 12dB/octave (also known as 2-pole). Depending on the type of filter, this means a reduction of 12dB for every halving or doubling in frequency. So for a high-pass filter with a cutoff of 100Hz, there will be a 12dB reduction at 50Hz. However, more powerful filters are available in the form of 24dB/octave (or 4-pole). Here the cutoff slope is effectively steeper.

Now, on the face of it there's nothing particularly amazing about static audio filters. The fun really starts when you introduce other characteristics, such as resonance, envelopes, VCAs, LFOs and sweeps. Resonance introduces a peak at the cutoff point, and in the case of some filters this can be large enough to cause self-oscillation. Combine this with an envelope which affects the filter cutoff (either independently or by tracking the input signal), and the results start to get interesting. Add to that a VCA (voltage controlled amplifier) also linked to the filter, modulate the filter with an LFO and you're essentially using the elements of an analogue synth but without the waveform generator.

Of course, the most recognisable sound associated with filters is the low-pass filter with a sweeping cutoff. Thankfully, many filters (especially those found on samplers) allow you to control this via MIDI, which is great for copying that annoying French disco music.




## filtering glossary

**2-pole:** The typical slope for a filter, often referred to as 12dB/octave

**4-pole:** Often referred to as 24dB/octave, this is a very steep slope.

**Cutoff:** Frequency at which a filter starts to attenuate.

**Filter:** A device that reduces the level of frequencies outside its range.

**LFO:** Low-frequency oscillator, usually with a variable frequency, used to modulate a signal. Frequencies are typically around 0.1Hz to 100Hz.

**Oscillator:** A device that creates a constant waveform at a specified freq, such as a sine or saw wave. In digital synths, oscillators are often more complex waveforms.

**Resonance:** Also known as 'Q' or 'emphasis'. A boost of a narrow band of frequencies (the resonant peak) at the cutoff point.

**Resonant filter:** A filter that selectively boosts certain frequencies, as well as reducing others.

**Slope:** Sharpness of a filter's attenuation characteristics, usually measured in poles (1 pole = 6dB per octave, a halving in signal level).

**VCA:** Voltage Controlled Amplifier. An electronic volume control, often across the output stage. Its level is affected by the voltage at its control input.

**VCF:** Voltage Controlled Filter. Its cutoff is affected by the voltage at its control input.

**VCO:** Voltage Controlled Oscillator. The waveform generator of an analogue synth. Its speed is affected by the voltage at its control input.

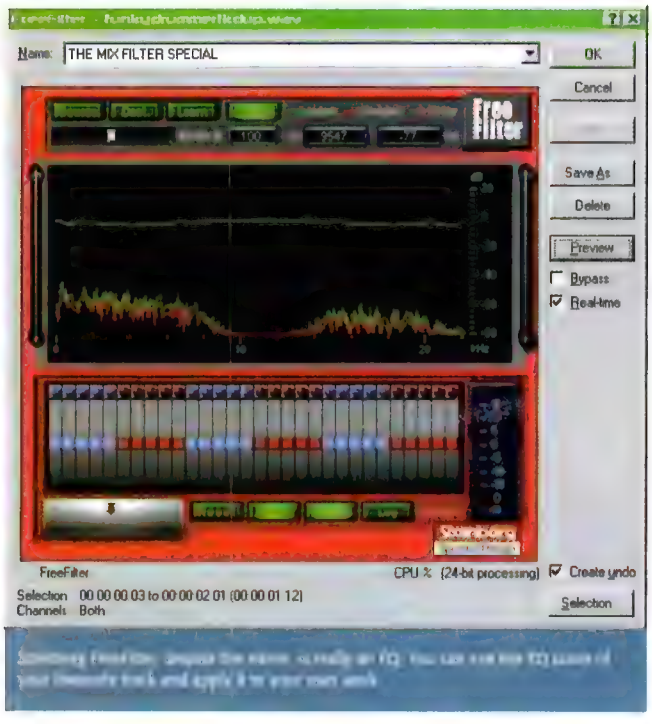
# Round-up: Software Filters

**Welcome to the world of software filters. Plug-ins, although not quite as 'hands on' as their hardware counterparts, are often better value, as you can use them on many different channels at once and you have the ability to save your favourite set-ups. Much like the hardware versions, plug-in filters allow you to radically change the source material and turn it into something more interesting. The advantage of running 'within' a software sequencer/recorder is that they can be sync'd to the tempo and feel of the music without the need for messing around with MIDI leads.**

**Obviously, another advantage is that when saving a 'song' or sequence, all the data for the plug-ins is usually saved with it, so you won't have to try to recreate that 'wicked sweep' you did last week. On the downside, you don't get real knobs to twiddle, which is half the fun, and there's less real-time interaction between the user and the music. Overall, the software filter will probably win out due to its value for money, and with the advent of hardware controllers, we can look forward to more 'hands on' software filtering. Here we've tested some of the more interesting and popular filters on the market.**

## Steinberg FreeFilter £199

The FreeFilter plug-in is a bit of an odd one when it comes to filters. It looks just like a 1/3 octave 30-band graphic equalizer, and it is, but its most interesting function is the ability to 'learn' an EQ curve and apply it to your mix. The best way to use it is to find a professionally-mixed track that has a similar feel and sound to your track and then record it onto your system. Boot up the FreeFilter and put it into 'learn' mode, then play the track. The FreeFilter will then 'learn' the EQ from the source track. Next, load up your stereo master and apply the EQ by selecting 'destination', and then 'match'. The FreeFilter will apply the new EQ curve to your master. You can morph between the new and old EQ settings to see if there has been any major improvement or if you need to try a different source track. We tested this using various well-known tracks alongside 'spoof' versions we had knocked up, and it appeared to work very well, although you always have to fine-tune the EQ yourself for a more natural result.

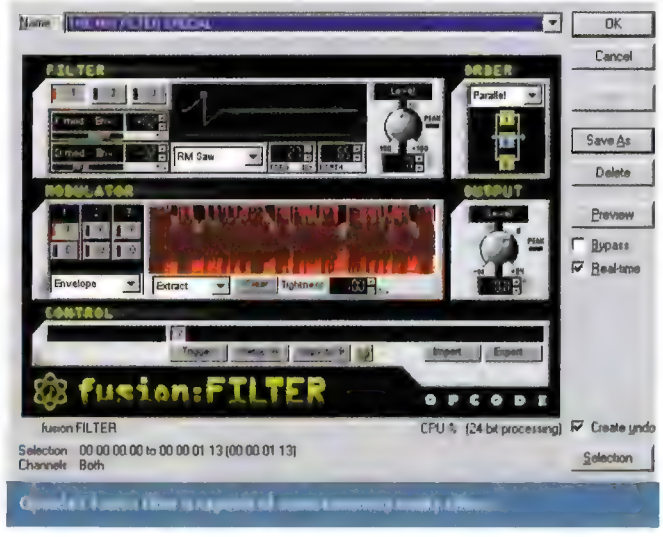



## Steinberg Waldorf Dpole £99

The Dpole is based on the Waldorf Microwave 2, and features the same controls as the hardware. It has five filter types to play with as well as overdrive, panning and delay. The LFO rate is even syncable to tempo and audio. Dealing with frequencies from 0Hz to over 17,000Hz, the Dpole uses either sine, triangle or saw waveforms to create some awesome effects.

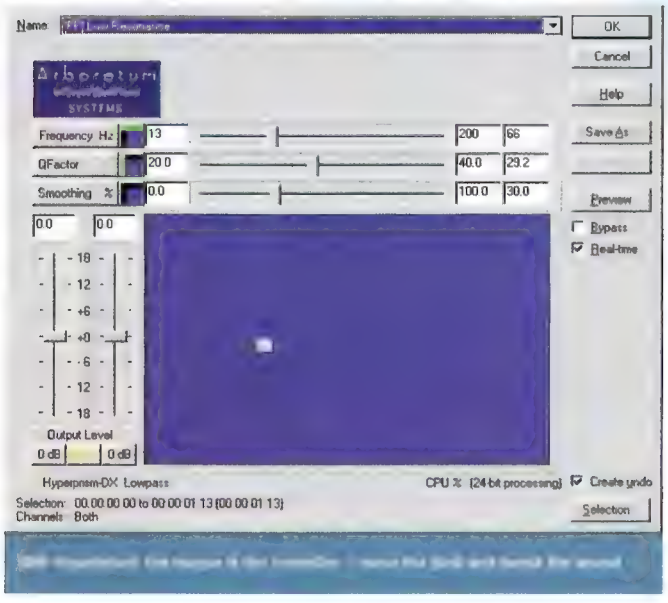
The filter module itself uses low-pass, band-pass, high-pass, notch or resonator-type filters and has either a 12dB or 24dB slope selector. With features including positive or negative modulation, filter cutoff, ring modulation and overdrive, the Dpole is a very well-specified filter allowing you to create an infinite number of new sounds.

We tested the Dpole on some bass samples, which were pretty boring, but all of a sudden they came to life. The overdriven filtered effect created an awesome new sound that was just begging to be used. Slamming some drums through the Dpole was a lot of fun, and you can easily create some really nasty beats just by playing with the various controls. This plug-in really is good for just playing around on until something grabs your attention. But be sure to turn your monitors down before you turn up the overdrive... it'll kill 'em.



## Opcode Fusion Filter £125

This plug-in features three independent filter modules with programmable LFOs, envelopes and tempo following. You can even import a wave to act as an envelope for the filter to follow. The three independent filters can be arranged in either parallel, serial or a hybrid combination to get some really wacky effects. Key features include low, hi and band-pass filters, notch and ring modulators. The overdrive function lets you create some scary sounds using the most basic of source material. Using a drum machine-style editor, the Fusion Filter has six user-definable envelopes, six file-extracted envelopes and a self-extracted envelope to play with. Using a drum track to trigger filter cut-off for a bass sample really sounds awesome and the ability to save all your best set-ups is great. The only drawback we found was the slightly confusing graphic interface, but this becomes easier with time.



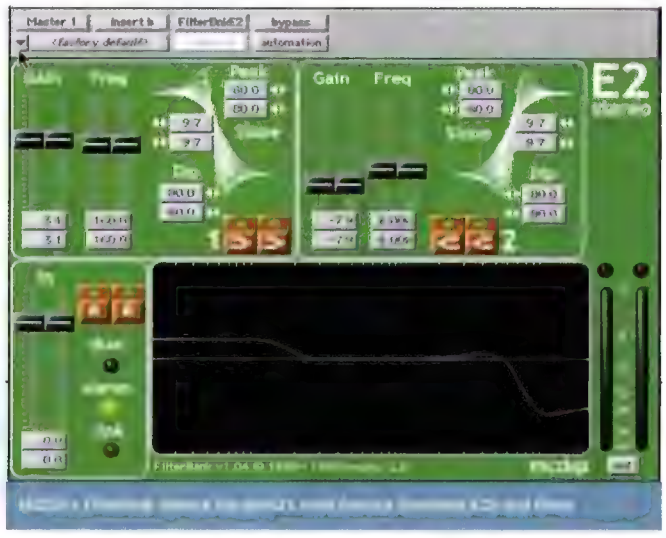

## Arboretum Hyperprism £276

The Hyperprism bundle of plug-ins includes three filter types: high, low and band-pass. They all use the same basic layout with the familiar Hyperprism 'blob in a box' controller, and the parameters are very basic, but you can do some excellent things with them if you know what you're doing. You can set the frequency parameters and Q along with the 'smoothness'. This allows a more subtle transition across the frequencies. The graphic interface, although not particularly striking, is very useful for adding real-time effects to your tunes. By moving the cursor around within the box, you can alter more than one parameter at a time, giving some interesting results. With no LFOs or modulation to worry about, you are left in control with the mouse as your controller. Subtle sweeps and slow filter changes are easy with Hyperprism, but for more detailed filtering, you should try one of the other plug-ins mentioned.

## McDSP Filterbank £434

McDSP are one of the legion of TDM manufacturers, and are getting more popular by the minute. This little Filterbank bundle can (so they claim) mimic any of the world's most famous outboard EQs and filters. It runs on a Pro Tools TDM system but is also available in AS and RTAS (Digi 001) versions too. In this hefty program you get a range of retro and very groovy-looking green TDM modules that are both AudioSuite and insert-compatible.

Each group of equalizers is categorized – for example, the 'E' group of modules has a shelving EQ. The other modules each have their own definitive style, so in the one pack you get a massive selection and variety of EQs and high and low-pass filters with peak control capable of -6 and -12 dB/oct attenuation and loads besides. McDSP have also




chucked in a band-pass/band-stop filter, called B1. This is a one-band filter, switchable between band-stop (notch) and band-pass operation. As a notch, B1 can eliminate 60Hz hum and other localized noise, or can be used at wider Q settings to create special effects and other signal separation results, so everything is catered for. If it's EQ and filtering you're after, get your hands on this one – it's a corker.

## Steinberg GRM Tools £149

More a set of sound shaping tools than effects plug-ins *per se*, GRM Tools comprises four separate units: comb filter, shuffling, band-pass and 'PitchAccum', each with 16 well thought-out presets. The interface throughout is superb, and it's possible to slide from preset to preset or anywhere in between in real-time just by dragging the relevant slider around. Impressive stuff.

The comb filter has five sets of filters with which to build some deeply crazy flanging and pitching effects, while the band-pass lets you define the width of the band – great for rhythmic parts. PitchAccum is a pitch-shifter on drugs, and shuffling slices up samples in real-time and puts them back together using a truly bizarre algorithm. All in all, a superb set of tools, but rather tricky to use at times since they're so 'out there'.

# Buyer's guide: filters at a glance

| name/manufacturer | price | type | uk contact | verdict |
|---|---|---|---|---|
| McDSP **Filterbank** | £434 | AudioSuite, TDM, RTAS (Mac only) | Unity Audio 01440 785843 www.unityaudio.co.uk | If it's a really cracking pack of filter madness you want with a retro feel and sound, then this one's a winner by a long chalk. A massive plug-in packed with easy-to-use, effective and versatile features. |
| Sherman **Filterbank** | £500 | Analogue hardware | Funky Junk 0171 609 5479 www.funky-junk.co.uk | There's nothing polite about the Sherman. If you're trying to create sounds totally unrelated to the original source, this is the unit for you. Less a filter, more like a sledgehammer. |
| Electrix **Filter Factory** | £360 | Digital hardware | SCV London 0171 923 1892 www.scvlondon.co.uk | A serious contender, especially if you like to control your effects via MIDI. Digital filtering comes of age. |
| Steinberg **FreeFilter** | £199 | Mac/PC | Arbiter 0181 970 1909 www.arbitergroup.com | A bit of an oddball. Not really a filter, but a 30-band graphic EQ with the ability to learn EQ curves from source material and apply it to your track. It's kinda cool, but takes a while to master. |
| Opcode **Fusion Filter** | £125 | Mac/PC | SCV London 0171 923 1892 www.scvlondon.co.uk | This little monster can create some truly awesome effects. The ability to 'import' WAV files to use as an envelope rocks. A little confusing at first; this one takes some time to get the results you want. |
| Steinberg **GRM Tools** | £149 | Mac/PC | Arbiter 0181 970 1909 www.arbitergroup.com | Varied selection of filtering options with versatile morphing between effects. Great for real-time control, culminating in some far-out, twisted sound abuse. |
| Arboretum **Hyperprism** | £276 | Mac/PC | Unity Audio 01440 785843 www.unityaudio.co.uk | The Hyperprism FX bundle doesn't offer the most highly-spec'd filters you'll see, but they do work in an interesting way. Very useful. |
| Big Briar **Moogerfooger** | £200 | Low-pass filter pedal | Turnkey 0207 419 9999 www.turnkey.uk.com | Probably the politest-sounding filter tested here, but built with a useful array of audio/CV sockets for integrating into the ever-expanding Moogerfooger range. |
| Mutronics **Mutator** | £560 MIDI; £500 non-MIDI | Analogue hardware | Mutronics 0171 608 3636 www.mutronics.co.uk/mutronics | Great if you like your units to come in pairs. Easy to use and good for creating weird stereo effects that freak out headphone-wearers. |
| Sherman **QMF** | £2,349 | Analogue hardware | Funky Junk 0171 609 5479 www.funky-junk.co.uk | The mother of all filters – four original Shermans in a desktop box, with extra features and a tasty old-skool patchbay system for expanding those creative horizons. |
| FAT **Resinator** | £170 | Analogue hardware | Turnkey 0207 419 9999 www.turnkey.uk.com | Innovative design that really works, but watch your loudspeakers. Another unit that's good for stereo effects. |
| Steinberg **Waldorf Dpole** | £99 | Mac/PC | Arbiter 0181 970 1909 www.arbitergroup.com | Full-on filter stylee... Using the Waldorf Microwave 2 for inspiration, the Dpole really is the business when it comes to software filters. |
| MAM **Warp 9** | £200 | Analogue hardware | Turnkey 0207 419 9999 www.turnkey.uk.com | Great if you need to save your settings to a user patch, plus it sends out MIDI. User interface can be a little awkward, though. |

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# D.I.Y. filter

## Handy with a soldering iron? Got a few spare hours on your hands? Why not have a go at building your own filter – it'll only cost £44

Order your filter kit, follow the simple step-by-step instructions over the page and *voila!* Your own filter

words
**Geoff Waterston**
photos
**Neil Godwin**
**Rick Buettner**

### CD info

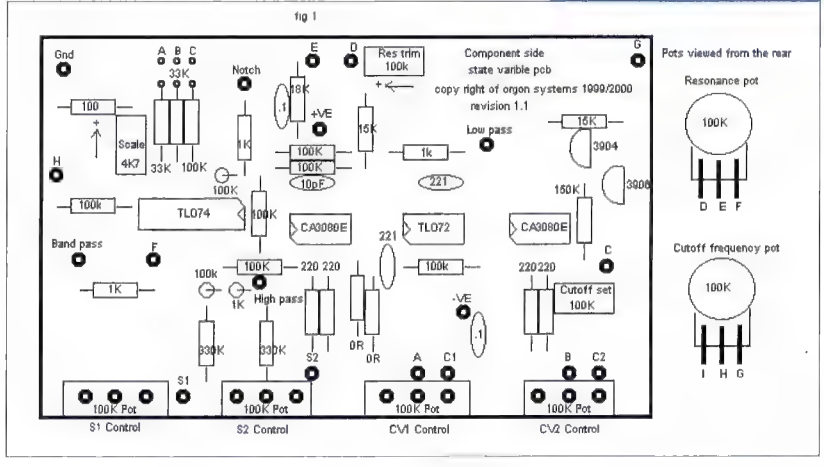
**tracks 14-16**
Geoff Waterston puts his D.I.Y. filter through its paces on track 14, then gives his full-blown modular synth a whirl on 15/16

The filter we'll be building here is a rework of the '70s classic 2-pole state variable as found on the Oberheim SEM, EDP Wasp and Yamaha CS20. It has a very rich resonant sound that can be overdriven into screaming distortion if you wish. The filter has two audio inputs and two control voltage inputs, each with amount controls. There are also controls for cutoff frequency and resonance, and the resonance will self-oscillate when set to maximum. The filter is very flexible and has four response outputs: low-pass, high-pass, band-pass and notch, all of which can be used simultaneously.

This filter can be used on its own, or as one of 20 components of a large modular synth that is more than capable of taking on the big names in synthesis. All of the modules, including the filter, are available in kit form exclusively from Orgon Systems (see *Purchasing Your Kit* on p.68, and each kit contains everything you need to build a fully-functional synth module in a couple of hours. If you can solder and have a little spare time, none of the kits should be a problem to you. So if you've ever dreamed of owning a modular synth but haven't got the huge budget required, this could be your chance…

My synth module kits are also compatible with nearly every other modular synth in existence today. The circuit will fit into the 3U frack rack systems used by other synth companies, and if there's enough demand I will make some front panels to fit these systems (although personally I think that 3U frack rack systems are costly and are a bit on the small side). I have opted for modules that are 6" high x 4" wide x 3mm thick; this allows me to use 1/4" jack sockets and space the controls out a bit.

Fig. 1. Here's the component layout diagram – all the components and instructions come with the filter kit (see p.



# Building the filter

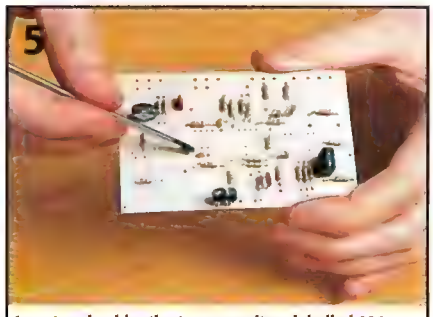
## Important notice: follow these instructions very closely!

Check the parts list supplied with your kit for any missing parts. You need to supply a soldering iron, some solder (18 swg multicore), a pair of side cutters (for trimming component leads), and a set of small flat ended screwdrivers for adjusting the trimpots.

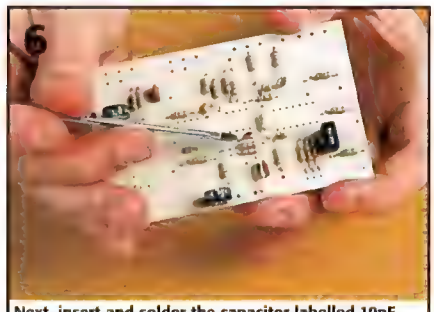
Insert and solder each resistor individually into the pcb as shown on the component layout diagram (fig.1). Start with the smallest values first and work your way up. A list of each resistor colour code and each component symbol used is included in the parts list supplied with the kit.

Insert the three trimpots into the pcb. Remember, one is a different value to the other two. These trimpots are used to adjust the maximum resonance, lowest cutoff frequency and the filter cv scaling.

Carefully insert and solder the two capacitors labelled 104Z. This is a .1µF capacitor used to decouple the power supply.

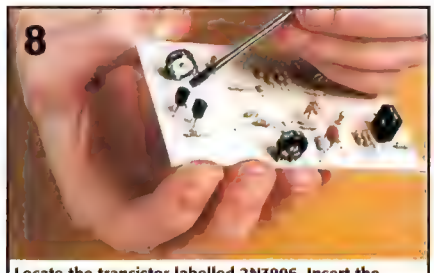


Insert and solder the two capacitors labelled 221. These 220pF capacitors are the filtering capacitors.

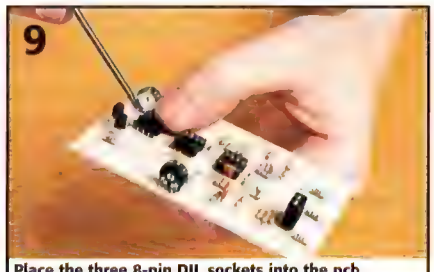


Next, insert and solder the capacitor labelled 10pF. This capacitor is used to even out the resonance at high cutoff frequencies.

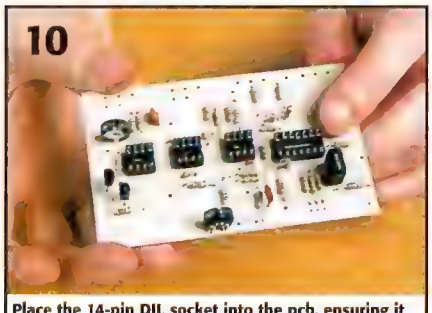
Insert the transistor labelled 2N3904 into the pcb, ensuring the orientation is the same as the component layout diagram. This transistor should be soldered into the pcb as quickly as possible to avoid damaging it.



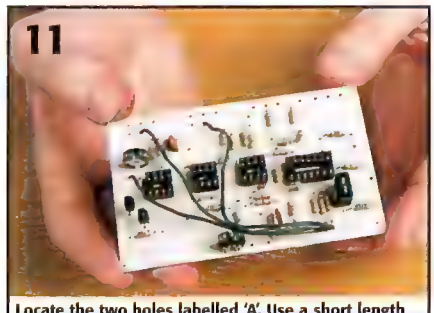
Locate the transistor labelled 2N3906. Insert the transistor into the pcb, ensuring the orientation is the same as the component layout diagram. Again, this transistor should be soldered into the pcb as quickly as possible to avoid damaging it.



Place the three 8-pin DIL sockets into the pcb, ensuring they are the correct way around (the notch goes to the left) and solder them to the board. You may have to bend over a few of the pins to stop the sockets falling out of the pcb while they're soldered.

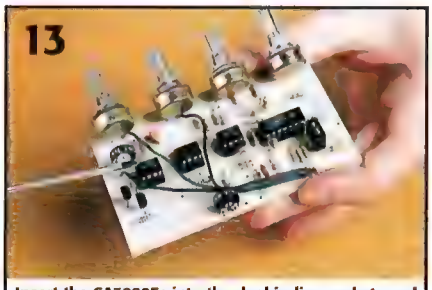


Place the 14-pin DIL socket into the pcb, ensuring it is the correct way around (the notch goes to the right) and then solder it into the circuit board.

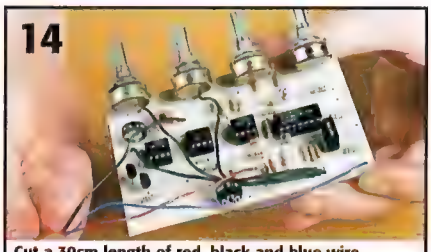


Locate the two holes labelled 'A'. Use a short length of green wire to connect the two holes. Repeat the process for the other two holes labelled 'B' and 'C'.

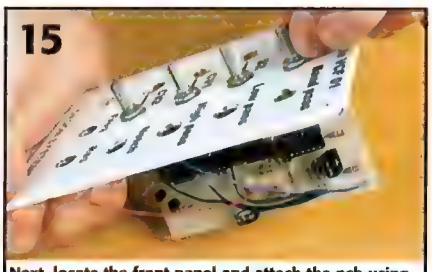
Next, solder the four 100k pots into the pcb.




Insert the CA3080Es into the dual in-line sockets and ensure they are the correct way round (the CA3080 notch goes the same direction as the dual inline socket notch). Repeat for the TLO72 and TLO74.

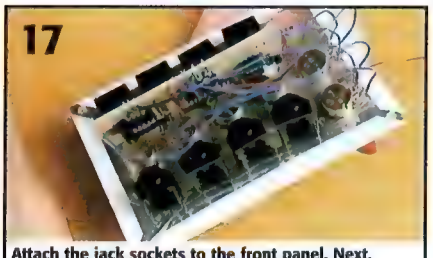



Cut a 30cm length of red, black and blue wire. Solder the red piece of wire into the hole labelled '+ve'. Next solder the black piece of wire into the hole labelled '-ve'. Finally, solder the blue piece of wire into the hole labelled 'Gnd'. These wires form the power supply input.

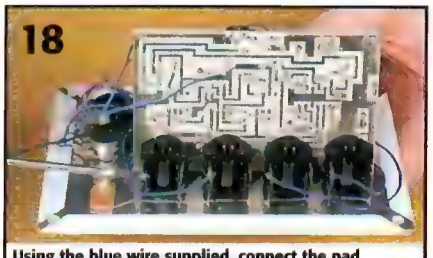



Next, locate the front panel and attach the pcb using the nuts on the front of the pots – be careful not to scratch the lettering. Next, the last two pots should be attached to the front panel as before, and wires connected to these pots from the pcb (see pic 16).

Start with the resonance pot (see fig.1) and use a short length of blue wire to connect hole 'D' on the pcb to pin 'D' of the resonance. Repeat for 'E' and 'F'. All pins of the resonance pot should now be connected. Next connect 'G', 'H' and 'I' to the cutoff pot, then connect 'G', 'H' and 'I' to the pcb.




Attach the jack sockets to the front panel. Next, thread a piece of bare wire through all the solder tags of the sockets that are nearest the front panel, solder all of these connections and attach one end of the bare wire to a ground point (GND) on the pcb. This loom forms the socket grounding.




Using the blue wire supplied, connect the pad labelled 'S1' on the pcb to the unused tags of the 'S1' jack socket. Repeat this process for 'S2', 'CV1' and 'CV2. You may have to remove the pcb from the front panel to gain access to the holes on the pcb – as you can see, there isn't a lot of room for soldering.

continued over page »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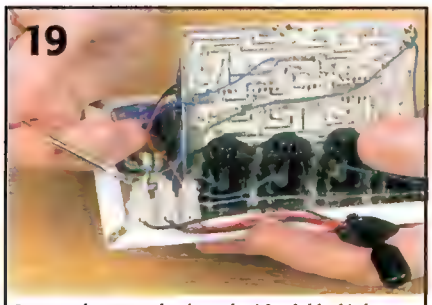
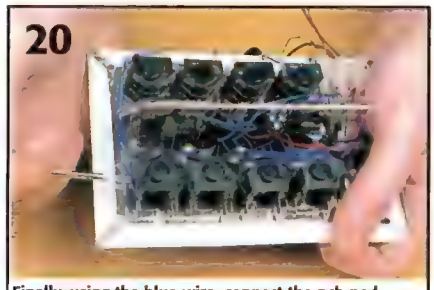



Connect the power leads to the 'chock block', then attach the front panel earth tag to the ground loom of the jack sockets.




Finally, using the blue wire, connect the pcb pad labelled 'band-pass' to the tags left spare on the socket labelled 'band-pass'. Repeat for pcb pads and sockets labelled 'low-pass', 'high-pass' and 'notch'.

Before you test the filter module, check all the components are in the correct places and all the wiring is correct. Next, check the pcb for any bad soldering. Connect the battery clips, following the diagram in fig.2. If all is okay, proceed to the testing stage (see below).

## Testing the filter

1. Connect an oscillator sawtooth output or an audio source to the 'S1' input jack and turn the 'S1' control up to maximum
2. Next connect the low-pass output of the filter to a mixer or amplifier
3. Turn the cutoff frequency pot fully clockwise and the resonance to twelve o'clock
4. Now connect power to the module via two 9V batteries. You should now hear audio coming out of the filter (it may be slightly filtered)
5. Remember to disconnect the batteries when you are not using the filter to avoid them going flat. You may find the filter has a little less headroom when you use battery power. A separate PSU module is available from Orgon Systems – if you're planning to build four or more of the synth modules it would be worth getting one of these
6. You will now have to adjust the scale trimmer to get a full sweep of the filter from the cutoff pot
7. Next, you will have to set the lowest cutoff frequency Turn the cutoff frequency pot all the way anti-clockwise and adjust the cutoff set trimmer so the signal just disappears
8. The resonance will now have to be set. This is achieved by turning the resonance to maximum and slowly turning up the resonance trim to the point of oscillation. Make sure the cutoff frequency pot is at 12 o'clock while making this adjustment
9. Try connecting an envelope generator output or an LFO triangle wave output to the 'CV1' socket. This should sweep the filter up and down. The 'CV1' pot should change the sweep amount
10. If you find the filter has not got enough gain or is a bit noisy, swap the two 330k resistors (orange, orange, yellow, gold) for two 82k resistors. This should give the filter about five times extra gain
11. The filter is now fully set up and ready for action Now, why not mount it in its own case

### Enclosing your filter

If you want to make a box to enclose your filter, you will need some 18 x 144 mm pine (very inexpensive from B &Q). Cut two lengths to 15.3 cm and another two lengths to 13.8 cm. The two 15.3 cm pieces form the sides of the box, while the remaining two pieces form the top and bottom. Glue the top and bottom pieces to the sides so a box is formed. The module should fit snugly into the box. With the remaining wood cut four pieces measuring 10mm x 10mm and glue these into each corner of the box. Now screw the front panel of the module into these pieces of wood and your filter will be snugly enclosed.

## COMPETITION!

### Name that synth, and win six module kits of your choice!

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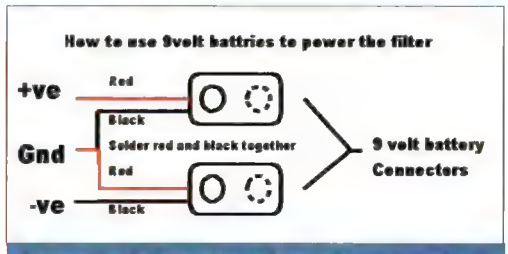
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## Purchasing your kit

To order your filter kit simply cut out the coupon on the left and send it to Orgon Systems (see address below) with a cheque for £44 – a saving of £10 off the regular price. For overseas readers, electronic transfer is possible – contact Orgon Systems for details

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# A long way from Times Square

words **Oz Owen** photos **Gavin Roberts**

## Gallic funksters Kojak self-produced their first album in a small flat on the outskirts of Paris. *The Mix* heads across the Channel to investigate

Picture the scene. It's the tail-end of a party and it's been a fantastic night. The windows are intact, all valuables can be accounted for and no-one puked on you. But it is 7am. So how do you tell those indefatigable stragglers that the festivities are over? Traditionally, a journey to the nether regions of the record collection will do the trick, and it won't be long before something comes to hand that'll clear the place faster than an impromptu Slipknot gig at a Billy Graham rally. For instance, Cliff's 'Millennium Prayer', The Wurzels 'Greatest' Hits or anything from just across the Channel.

Kojak's minimalist and compact studio set-up in the suburbs of Paris

Oh yes, hands up who would groove on to such chanteurs as Sasha Distel, Vanessa Paradis, Johnny Halliday or anything by Jean-Michel Jarre? *Exactament.*

But how the times they are a-changin'. With the last few years turning up such gallic gems as MC Solaar, Daft Punk, Cassius and Air, the French are fast shuffling of their cheesy coil and exposing the world to what can only be described as a renaissance for French music.

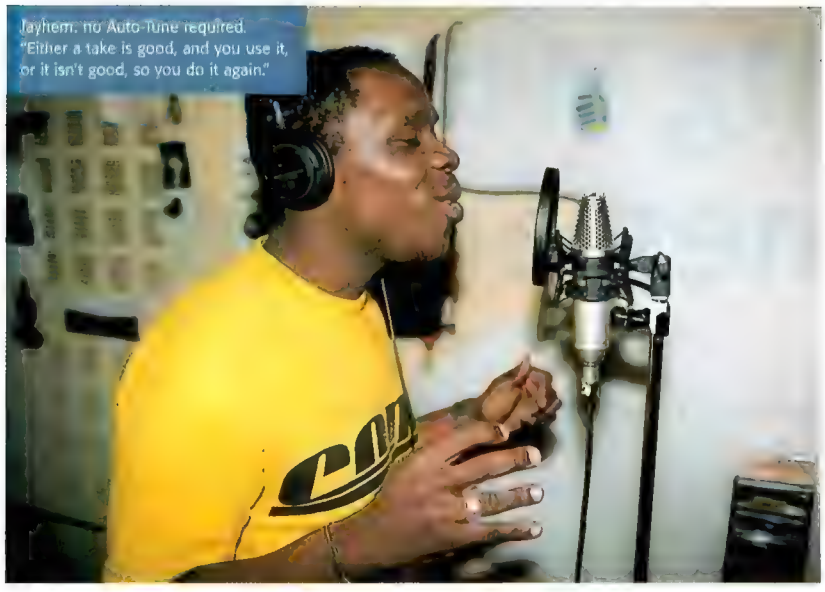
And the rebirth goes on, with new French filtered funksters on the block, Kojak. While the music hacks universally praised their refreshing blend of minimal beats, funky b-lines and soulful vocals, their debut album *Crime In The City* found favour with clubbers and students alike at the tail end of last summer.

And at the beginning of this summer, we at *The Mix* found ourselves in one of the less salubrious suburbs beyond the Peripherique, outside an unremarkable building that is Pro-Zak Records, where Kojak are working on some new material for future release.

The three members of Kojak are as musically diverse as can be, bringing together the best elements of dance music to arrive at their own distinctive style. But they don't just hide themselves away in the studio – Kojak have spent much of the last two years on the road, tearing up the clubs from Toulouse to Tyneside. Greg, longtime techno DJ and owner of Nekko Records mans the samplers on stage, while DJ Vas hits the decks to scratch over the breaks. The third member, Jayhem, drops soulful vocals into the mix and generally takes it upon himself to whip up the crowd.

DJ Greg tells us how they got it together. "I'd just started my own [Nekko] record label and was looking for some new artists. At the same time Vas was producing hip hop tracks but was looking to put out some house tunes he'd just finished and was looking for a label. Originally we decided to get an EP together, but we made quite a bit of progress together."

One month after that, they had their first gig, and the duo wanted to get a singer onboard. Vas suggested Jayhem because they'd done some stuff before. He didn't know anything about house music, but things just clicked, and the next day Jayhem joined »



Jayhem: no Auto-Tune required. "Either a take is good, and you use it, or it isn't good, so you do it again."

"Everyone has the same machines, so your sound depends more on how you use them and program them" **Greg**

## CD info

track 17-26

Original copyright-free samples from the Kojak studio, specially selected for *The Mix* readers

» them on stage for the first time.

Kojak's minimalism extends further than the boundaries of their music, and hearing how the first album was put together confirms this. "We recorded the first album in my place," says Greg. "It was a really small flat, and that was with my bed, my dog, and all my gear – that's how Vas and I were working. Some of it was recorded at my grandma's house out in the countryside, like the vocals on 'Soulful', and the album was mixed at home.

The trio didn't set foot anywhere near a 'pro' studio while making the album. In fact, the vocals for 'Soulful' were recorded with a Shure SM58 straight into the sampler. "These days the equipment is so great that everybody can do something. Sure, it's always better to get the big compressors and the tube processors and we do use that stuff, but we always try to get the best out of all the equipment we have. If you only have two pieces of gear, you've got to know them inside out."

Greg has an engineering background, so is on the ball when it comes to using the desk and outboard gear, but he still maintains that it's easy to lose the plot if you have too much equipment. "If you only have five or ten machines and you know them really well, you can get better results than with loads of gear in a really big studio that you don't really know.

"The machines you use are important, but everyone has the same machines, so it depends more on how you use and program them. There's always going to be the guys who just use, say, an S1000 and do great stuff with it, but then you get someone like Jean-Michel Jarre who's got this enormous studio and the stuff he's doing is crap. People say he's the godfather of French Techno, but that's bullshit."

As the live set-up shows, there's a heavy reliance on samplers when it comes to getting the Kojak vibe together, and with financial rewards making life easier, a crossover to computer-based systems would be on the cards for many. Not so with these guys, as Greg explains. "I think we're going to stay with the samplers. There are some that are better for certain sounds, so we have a few. We use an Akai MPC60 for the high sounds and short and simple sounds, like snares and hats, and the (Ensoniq) ASR10 or the E-mu for the fat sounds, like the bass – different samplers give different sounds. If you only use one machine, like the computer, for example, you've got the sound of your computer and it's usually not very good, but if you use a lot of different samplers, you get the best out of each of them, so the sound will be better.

Vas is quick to agree. "Every machine is different, and you don't use them all in the same way. And if you're using different ones it can open you up to

Tools of the trade: FX, samplers, filters – in fact, everything you need for a Kojak tune

Hip hop producer DJ Vas, scratching up a storm on the ol' ones and, er... um

Well, funk me! Pedals can be a great way to spice up a track, adding a gritty edge to all that passes through

sounds you might not get if you just have the one sampler."

But they'll definitely be getting a few new bits of gear for the next album, as Greg tells us. "Certainly a good reverb and a bigger mixing desk, but not digital. I hate digital. Maybe in a few years when they sort it out a bit better – the big ones are fine, like the Neve or SSL, but the small ones just sound cheap. There's no brightness, no fatness.

"We try to get the equipment that's at the same level as we are. It would be stupid to get in a Neve desk – I prefer to go step-by-step and to know everything that I've got. The effect we're using most in our productions is filtering, and we prefer simple analogue filters. I know people who are working with the Sherman Filterbank and doing great stuff with it, but I can't work with it…

"That's because it's too complicated for you," laughs Vas, "but that's why I use the ASR10, because it's very simple, you know – you don't see the waveform or anything, so you have to use your ears."

Confirming Kojak's retro tendencies, Greg continues: "There are two things I'm crazy about at the minute, the (Ensoniq) DP/4+, which is in a similar style to the ASR10, and the Mutron Bi-Phase. It's very simple, and the warmness of the sound… you just plug stuff into it and it sounds great. With lots of other gear you have to change hundreds of different parameters and so on, but with the Mutron you just plug it in and that's it."

And for Vas, he's a big fan of the Manley optical compressor. "It's great, we just put it on a subgroup and buss things to it, and it sounds amazing. But you need to let it warm up for ages, then mix through it at the end of the day."

Jayhem, rather infuriatingly, has this same attitude to gear, preferring to keep things simple. "If the vocal sounds cool, then why do too much to it? Maybe we'll put more processing on during a break or something, but usually it's just a bit of reverb and delay. For me the most important thing is the simplicity of the vocal, and if you get it right, there's no need to do too much to it. We won't be getting in an Auto-Tune, or anything like that – things start to take too long when you're messing about with gear like that. Either a take is good, and you use it, or it isn't good, so you do it again."

Greg in the mix, displaying those studio skills essential for self-produced albums

"It would be stupid to get in a Neve desk – I prefer to go step by step and to know everything that I've got inside-out" **Greg**

We hate that," adds Greg, "you hear so many tunes on the radio or TV, and you know that the voice has had so much done to it. It's like a lot of these R'n'B bands. When you hear the production you think 'Yeah, that's great. And that vocal!' But then you see the same artist live and you just think 'Oh shit, they're awful'."

And as for the future? "We're starting work on a new album now. We don't know what it's going to be like, but it will be different to the last one. It's going to have the same feeling, the same background, the same things that brought us together, but we'll develop the Kojak sound. And we're going to move the studio to a bigger place. We might bring in a few musicians to work with, but we're not sure yet. Maybe we'll do a track with Jean-Michel Jarre – who knows?"

Greg tells us he needs a bigger mixing desk – and maybe a new controller keyboard wouldn't go amiss?

## Kojak's selected kit list

SAMPLERS
E-mu E6400
Ensoniq ASR10
Akai MPC60
KEYS
Roland SH-101
Korg MS20
Roland Juno 60
EFFECTS
Ensoniq DP/4+
Electrix Mx-FX
Electrix Filter Factory
Freetwave pedals
OUTBOARD
Manley optical compressor
Drawmer DL241
Oram HD-EQ
DBX 160
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# Undiscovered ORIGINALS

UK BAND SEARCH 2000 AT Yates's

**After the success of last year's Undiscovered Originals THE MIX is delighted to announce Undiscovered Originals 2000!**

**The competition will take place in Yates's Wine Lodges up and down the country. There will be over 50 heats starting in July and culminating with four bands going through to the Grand Final at the end of November 2000.**

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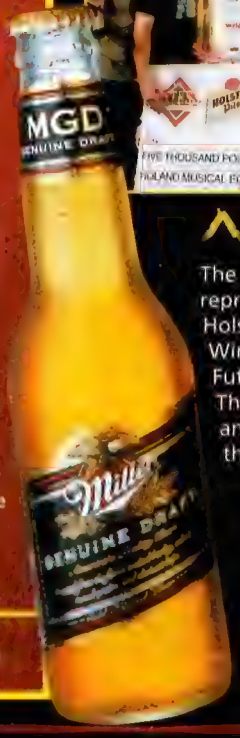
## HOW DO YOU ENTER?

*UNDISCOVERED ORIGINALS 2000* is open to any unsigned band/artist who can perform an original piece live. Simply send a CD, cassette or DAT with your entry form to the address specified. Your entry must arrive *NO LATER* than June 9th 2000.
Remember to mark your entry clearly with your details.
Due to the heats being played in licensed premises you must be over 18 to enter – sorry.
You'll find an entry form, together with the rules of entry inserted between pages xx and xx.
***Hurry, fill in the entry form and get your demo off NOW!***

Our experienced team of judges consisting of editors, writers, contributors and musicians will decide which bands/artists will make it through to the first round.
This year there will be three rounds, plus the grand final. The first 108 bands will battle it out in Round One, taking place over 36 nights between 17th July and 29th September. Round Two will run for 12 nights between October 2nd and 27th. The 12 winners of this round will go through to Round Three starting week commencing November 6th with four bands going through to the Grand Final on November 25th. You must be able to play at a Yates's Wine Lodge on the date specified.

The closing date for entries is June 9th 2000, any we receive after this date will not be considered.

For a full list of the rules and regulations please see the inserted entry form in this issue, or write to: Undiscovered Originals Rules & Regulations, 30 Monmouth Street, Bath, BA1 2BW.




Last year's Undiscovered Originals was nail-biting to the finish. With six fantastic bands in the Grand Final, our judges had a difficult choice ahead of them. The decision was excruciatingly close, but in the end they picked Hallelujah Johnson for their superb performance, up-front contemporary sound and great songs.

The HJ's with representatives from Holsten Pils, Yates's Wine Lodges and Future Publishing. Thanks to Yamaha and Roland for the cheques!

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# new releases

All the major album releases of the month reviewed and rated, our snap verdicts on the best of the rest, and our classic sessions spot *Milestones*

## MATT DEIGHTON
## YOU ARE THE HEALER
## (BARLEY WHEEL)

MD is the ex-Mother Earth and Acid Jazz singer-songwriter – as well as being Paul Weller's current guitarist – and he's finally released the *Healer* album that he's been toying with for eons. Shades of John Martyn, Bob Dylan, Nick Drake and, of course, Mother Earth can be found in this superbly recorded piece of work. Highspots include the tunefully poignant opener 'Five Years In Pieces' and the pensive 'Twisted Wheel', while co-producer and vocalist Nicola Bright-Thomas shows plenty of her own melodic style during 'The Garden Grows'. A modern classic. • *Phil Strongman*

**Producer:** Matt Deighton/Nicola Bright-Thomas
**Studio:** The Chapel
**Engineer:** Ewan Davies
**Verdict.** Matt's the music healer .....9/10

## MAYSA
## ALL MY LIFE
## (EXPANSION)

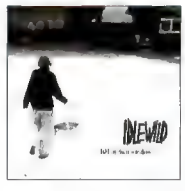
Not the most radical solo career decision: to record your sophomore solo album with your former group partner. Thus this Jean-Paul 'Bluey' Maunick collaboration is ostensibly an update of Incognito circa the early '90s. Unfortunately the sound doesn't seek to evolve from the *Tribes, Vibes and Scribes* days, nor does it benefit from Bluey's renewed vitality in the wake of his recent remix excursion, preferring to rehash old Stevie analogue progressions with safe rhythm guitar and acoustic drum accompaniment. In need of some magic dust, methinks. • *Jon Andre Holley*

**Producer:** Jean Paul 'Bluey' Maunick
**Studio:** The Blue Room
**Engineer:** S. Cotsworth
**Verdict:** Not incognito enough .....6/10

## PATTI SMITH
## GUNG HO
## (ARISTA)

Time seems to have stood still for Patti Smith. 25 years after *Horses* set the New York scene alight, she's still backed up by guitarist Lenny Kaye, still on Arista, and still up to her eyeballs in that Velvets-meets-Television NYC new wave sound. And, strangely enough, it still works – thanks largely to the undiminished power and passion of her voice. *Gung Ho*, her seventh LP, is a fine release which, despite the occasional rockout and a song (ahem…) "inspired by Mother Theresa", never sounds laboured – and never leaves you wondering why she's still bothering. • *Simon Ounsworth*

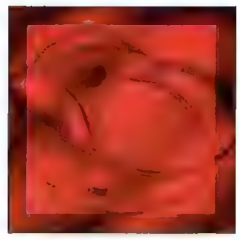
**Producer:** Gil Norton
**Engineer:** Danton Supple
**Studio:** Seer Sound, NYC
**Verdict:** "If it ain't broke..." .....8/10




## IDLEWILD
## 100 BROKEN WINDOWS
## (FOOD)

This band has a reputation for kicking some ass live, and after two years of constant touring, it's no surprise that they've released a live-sounding second album. But while 1998's *Hope Is Important* was a short sharp shock, *100 Broken Windows* is definitely a slow burner. Gone are the punk thrashers and quirky humour – Idlewild have now planted their boots firmly in melodic indie territory, with the ghost of REM past casting its spectre over the whole affair. What saves the day is the band's undeniable songwriting talent, and after a few plays, it starts to shine through. • *Andrea Robinson*

**Producers:** Dave Eringa/Bob Weston
**Engineer:** Various
**Studio:** Various
**Verdict:** Subdued and world-weary .....7/10



## in brief

THE DEADLIGHTS *The Deadlights* (Elektra/QED) A fearsome foursome from LA, Deadlights obviously have a thing about sounding extremely nasty with an abundance of guitar-crunching and horror movie vocals. If you're a confirmed headbanger or a fan of Californian heavy metal then you'll probably warm to the razor-like noises within. If you're not, then I seriously doubt that this offering will convert you. (PS)

SYMPTOMS *Symptoms* (Swim) Lo-fi ambient music straight from 23-year-old Klaus Ammitzboll's bedroom, proving once again that anyone can make a record nowadays – the hard part is making it good. Klaus wrings some interesting distortion-saturated noises out of his guitar set-up, but otherwise *Symptoms* is nothing special. (SO)

## in brief

VARIOUS *Cosmonique Organic* (Zip Dog) Holiday exotica nicely recreated on a strong compo featuring the Stereo MCs, Loop Guru and Neil Sparkes and his Last Tribe. This CD, like its Electronic twin, also has games, blogs and DancerDNA software. (PS)

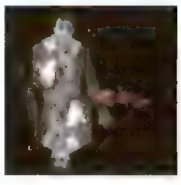
BOHREN & DER CLUB OF GORE *Sunset Mission* (Wonder) Sax and piano driven lounge music that sounds like a particularly moody Tom Waits LP without the vocals, or maybe all the most depressing bits from *A Touch Of Frost* rolled into one. Sounds dour, but *Sunset Mission* sticks to the downbeat jazz formula so resolutely that it ends up being a strangely moving record. (SO)

JUSTICE *Hears to the Future* (Hyperion Dukebox) No one could accuse Justice of running with the flock on this downbeat collection, veering between low tempo sumptuous strings to ultra-minimal electro action. On rare occasions they up the pace, but always with a stubborn refusal to progress much beyond the opening bars. More a collection of ideas than an album to be cherished. (DT)

### NO DOUBT
RETURN OF SATURN
(INTERSCOPE/ POLYDOR)

After the runaway success of 'Don't Speak', No Doubt were in the not-very-enviable position of keeping the momentum up. The solution? Rent a house in the Hollywood Hills for a couple of years and enlist Aerosmith/Alanis Morissette producer Glen Ballard to oversee proceedings. And *Return Of Saturn*, while lacking the throw-away catchiness of *that* track, is hugely mature, both in terms of production and lyrics. And that's because (little known fact) this is actually the band's fourth album, and not some lame attempt at a follow-up money spinner. • *Michael Stand*

**Producer:** Glen Ballard
**Engineer:** Alain Johannes/Karl Derfler
**Studio:** Private
**Verdict:** Don't doubt No Doubt .....7/10



### STAIND
DYSFUNCTION
(FLIP/ELEKTRA)

Staind are another metal-type band with a fast growing reputation and they're now being championed, and co-produced, by Limp Bizkit's Fred Durst. But, despite some nicely-worked contrasts in the opening numbers, much of this is slowed down by a lumbering click-track feel. Not that the gang are without talent – hypnotic pieces like the edgy-yet- spatial 'Me' and the throbbing guitar-fest 'Raw' generate real excitement and might explain why this has already gone double platinum in the USA. Most of the rest, however, just don't reach the same level of intensity. • *Phil Strongman*

**Producer:** Terry Date/Staind/Fred Durst
**Studio:** Studio Litho
**Engineer:** Terry Date/Ulrich Wild
**Verdict.** (Neo)dysfunctional .....6/10

### COVENANT
UNITED STATES OF MIND
(DEPENDENT)

If you stuck Gary Numan, Heaven 17, Depeche Mode, Kraftwerk and Nine Inch Nails in a blender, it'd be a pretty messy sight. Sonically, that's a taster of what these Swedish guys are about. Technically, *United States Of Mind* is faultless. And that's the biggest problem, because it makes the whole foray utterly predictable. This is the chaps' fourth album, and while its elements of Euro house and witty Momus-esque lyrics will find favour with many, it's ultimately too formulaic to stand any rigorous test. Entirely disposable – it'll probably do immensely well. • *Michael Stand*

**Producer:** Covenant
**Studio:** Covenant
**Engineer:** Covenant
**Verdict:** Trite Eurobeat .....5/10

### PAUL WELLER
HELIOCENTRIC
(UNIVERSAL ISLAND)

It's quarter of a century since Paul Weller phoned me, trying to get on a South Coast scooter run. In the end he preferred to waste his time practising guitar and achieving worldwide success. Now, after three years' silence, the Modfather returns to find Britpop dead and the charts full of clockwork-dancers. Of course, it's all a matter of supreme indifference as the trippy-folk-soulboy continues to weave his own merry way. Well-produced and, by turns, yearning, sparse, playful and magical. *Heliocentric* represents a new high for the six o'clock hero. • *Phil Strongman*

**Producer:** Brendan Lynch
**Studio:** Heliocentric
**Engineer:** Max Heyes
**Verdict:** Excellocentric .....9/10

## MILESTONES: 1981

### HUMAN LEAGUE
DARE
(VIRGIN)

**Producer:** Martin Rushent/Human League
**Studio:** Genetic Sound
**Engineer:** Dave Allen

# What's the next big thing in music?

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Future Publishing
Media With Passion

# Abdala Studios, Havana

words **Chris Kempster** photos **Ramon Szmichowsky**

This month Studio File goes 'on vacation' to Cuba to find a world-class studio in a musically-charged atmosphere. Our man in Havana is *Chris Kempster*

Cigars, rum, Hemingway, Graham Greene, Fidel Castro, Che Guevara, '50s Cadillacs – there's no shortage of images that come to mind when you think of Cuba. But for people who have actually visited this amazing place, there's one abiding impression that overrides all others – and that's the music. There is virtually nowhere you can go in Havana without hearing music – in the street, in the bars, in the taxis, in the hotels – music is everywhere. It's not surprising, though, in a country that boasts more registered professional musicians per capita than any other place on earth. And it's also no surprise with this amount of musical talent on tap that Cuban musicians have had such an effect on world music, from the latin jazz movement of the '50s to today's salsa-inspired pop of Ricky Martin, Jennifer Lopez and Gloria Estefan.

But though there may be an abundance of music, Cuba isn't exactly renowned for the quality of its recording studios. In fact, most people would be struck dumb if you told them that in the heart of Havana lies a world-class recording facilty that boasts two SSL-equipped studios, a ProTools mastering suite, MIDI room, and a live room that could fit the Royal Philharmonic Orchestra in... with ease. How could this be possible in a country whose economy has suffered so severely under America's draconian trade embargo? We decided to check out the story for ourselves, and so embarked on the 5,000 mile trip to the largest island in the Caribbean...

## Havana calling

Cuba's capital city is one of the most atmospheric and evocative places on earth, with the crumbling colonial streets of Old and Centro Havana positively buzzing with street life. But take a trip along Havana's famous Malecon seafront, past the infamous Nacional and Riviera hotels (patronised by movie stars and mafioso in the '50s), and you come to the new part of town, where plush hotels and government buildings make this look like any other modern city. Drive further still and you find residential areas that are home to embassies, foreigners working in Cuba, and the more privileged of Havana's 2 million residents. This is where Abdala Studios is situated.

Abdala is a state-owned facility (every business is run as a 'joint partnership' with the government) but the inspiration and driving force behind the studio is international singer songwriter Silvio Rodriguez, whose influence and respect here allowed him to persuade the government to back the project:

"When we began the creation of Abdala there were only three recording studios in Havana which had been built in the 1950s; those used for film productions, built before 1959; and the Areito studios in Santiago de Cuba, which are also old. This inadequacy was the main reason for creating Abdala, because it led to long waiting lists to record Cuban music and then, once in the studio, one would be subjected to the time constraints which make it difficult to calmly put one's ideas down on tape."

It seems amazing that a country with such a rich musical tradition and such a vibrant music scene should have a dearth of proper recording facilities, and this is one of the motivating factors for Silvio's crusade: "If you take into account that Cuba is a great producer of all kinds of music, and that for the last 40 years a school of arts has existed which has produced many musicians, you will be able to see that whilst all this potential was growing, the country didn't have the infrastructure to be able to support the work of the new talented graduates, or the skills of the old masters."

The hidden treasures of Cuba's musical past have recently been patronised by westerners, most notably Ry Cooder with his *Buena Vista Social Club* project, but support and promotion of Cuban music has long been a burning issue for people like Silvio: "We started to plan the Abdala project in the mid 1980s, long before this boom of Cuban music hit the world. But in Cuba we were conscious of what was happening and of the frustrations that might arise if the foundations weren't laid down for a recording industry."

## Master plan

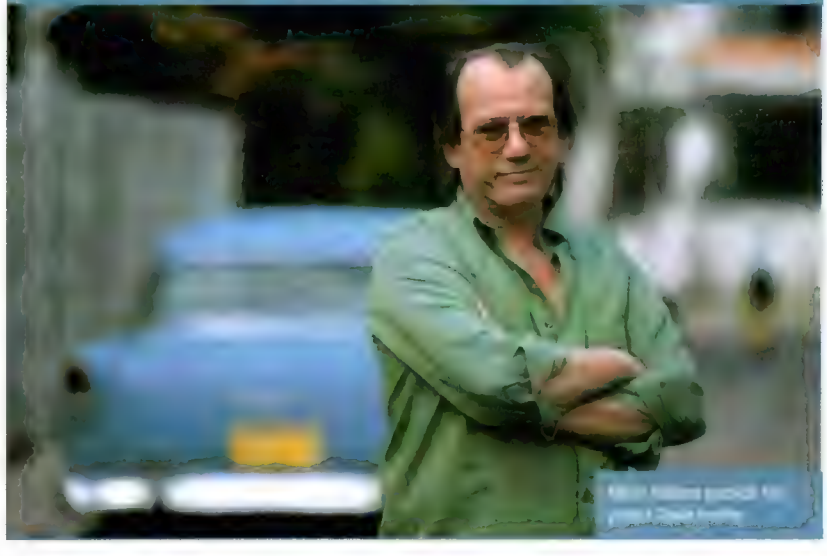
While Silvio had the clout to get the idea of Abdala off the ground, he needed someone with the technical expertise to be able to make the whole project happen, from designing the rooms to spec'ing equipment and overseeing its installation. The man he turned to was Miguel Angel Barzagas, or Maykel as he's known to his friends. Maykel has worked with Silvio for many years, engineering numerous album and live projects, and is probably the most knowledgable and respected sound man in Cuba. Maykel is justifiably proud of the facility he has masterminded, and he took great delight in showing us around the complex, along with his Chief Engineer Victor Cicard.

The crowing glory of Abdala is Studio 1, with its huge live area (153 square metres), complete with isolation booths. "This week we have been recording the National Concert Band, which is over 50 musicians," says Victor, "and we've also had the National Symphonic Orchestra in here, which is even larger". There aren't too many studios with this much space to spare – anywhere – and the whole effect is topped off with the presence of a brand new Steinway D series concert grand, which yours truly couldn't resist having a tinkle on.

The control room itself is as impressive a sight as you'll see, with its SSL G series desk, Genelec 1035 full range monitors, DASH and Studer multitracks, and racks of the best in analogue and digital outboard processors. "We talked to lots of people about what equipment we should install," says Maykel, who has worked in studios around the world, "our aim was to provide the best possible service and create a truly world-class facility."

And this is how they made the crucial decisions of what desk and monitors to get – by talking to professionals both in Cuba and the rest of the world – and the names SSL and Genelec were the ones on everyone's lips: "I love the Genelecs – either the big ones or the1031s", says Victor, and indeed this is what is used for monitoring in every room in the complex. Compatibility of equipment across the

### Silvio Rodriguez – the man with the dream



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Victor (l) and Maykel (r) in the Studio 1 control room, which features a SSL G-series desk and Genelec 1035 monitors

**info**

Rates

Studio 1: 120 US dollars per day

Studio 3: 100 US dollars per day

Contact details

Email: [illegible]

Tel: 00 537 245 245214

Fax: 00 537 244006

www.abdala.cubaweb.cu

UK bookings

Home Service

Tel: 0208 943 4949

rooms means transferring projects from room to room is no problem: "There's the same equipment in each studio – same desk, same outboard – so you could quite easily record in one and mix in the other." Studio 3, the other SSL room, is smaller than Studio 1, and features a similar spec of equipment, but at a cheaper rate: "Studio 3 is smaller, more intimate – it's great for smaller groups," explains Victor.

The mastering room, equipped with ProTools 24, Yamaha 02R, Cedar restoration processors and a bunch of plug-ins means Abdala can handle projects from beginning to end. Pre-production is handled by the MIDI programming room, which features an impressive selection of samplers, synths, and sound modules. One thing to strike us was the amount and quality of the gear at Abdala, but the engineers here clearly see it as a necessity rather than a luxury: "There are no hire companies here, and buying new equipment takes a long time, so we have to have everything here and now", explains Victor. And when he says 'everything' he means everything. There's a huge storeroom in Abdala that caters for every eventuality, from exhaustive supplies of tape and cassettes, to guitar picks, drum sticks, and replacement machine parts – I could only find one kitchen sink, though!

It seems that nothing is allowed to get in the way of the recording process here, and that includes even the idiosyncracies of living in a city where a constant supply of electricity can't be taken for granted. Sometimes it's due to shortages of oil when electricity is rationed, and sometimes it's down to the sub tropical climate: "Last October, when Hurricane Irene hit Cuba, we had some Norwegians in the studio and we just carried on recording," says Victor, "we have a UPS in-line [uninterruptible power supply], feeding all the equipment. The generator takes six seconds to cut in, so you wouldn't notice in the studio. It powers the whole studio, air conditioning systems, everything."

## Home grown

In keeping with its remit to promote Cuban music, Abdala also has several record labels and a publishing house, which are home to a diverse range of

musicians: "Musical activity in Cuba is governed by well defined state laws," says Silvio. "Abdala Studios, until a short time ago had its recording service limited, but recently an editorial license was granted. The criteria that has been selected for this is encouraging, because it's not about easy listening music, rather about the true cultural projects from young and old alike. Abdala has always been open to all kinds of productions, and in its time it has seen musicians, recording artists and foreign producers, all with different interests and opinions. It is hoped that all aspects of this activity will increase."

While foreign producers and labels will be encouraged to record at Abdala – it is, after all, a commercial concern – Silvio believes that there will be some great home-grown music created here in the years to come: "The natural talent of this nation, helped by musical education has already borne fruits and we live in the hope that more will be produced. I believe that our roots are very rich and I also believe that interesting things must appear from their contact with the rest of the world."

## Join the queue

Though Abdala is already an impressive facility, there are plans for the coming year – a 5.1 movie studio and residential facilities among them – that will make it an even more attractive proposition for UK producers looking to record abroad. With rates this competitive, it's quite conceivable to bring an album project here, safe in the knowledge that you're getting all the facilities of a London studio, but in a fantastic location and with access to some of the best musicians in the world. And there's always the fact that the beach is only 20 minutes away and beers cost a dollar a bottle!

We're not the first ones to pick up on the merits of recording in Cuba, though. Paul McCartney was allegedly spotted in Santiago de Cuba recently, and Michael Jackson's producer Bruce Sweedian has visited Abdala for a quick look around. Could the King Of Pop be thinking of recording his next album here? Who knows, but one thing's for sure; Castro's revolution may be over 30 years' old now, but Cuba's recording revolution is only just starting...

## selected kit list

Studio 1

SSL 4056 G+ series with Total Recall

Studer A827 with Dolby SR and DASH D-827

Tascam 2488, DA38 (48 tracks)

Genelec 1035B and 1031 monitors

Studio 2

SSL 4040 G+ series with Total Recall

Studer A827 with Dolby SR

Alesis M2M XT (24 tracks)

Genelec 1035B and 1031A monitors

Studio 3 (MIDI room)

Yamaha O1R, ProMix 01

Alesis ADAT XT (24 tracks)

Akai CD3000XL

Emu E4K

Roland A90, SC880

Korg Trinity Pro X

Kurzweil K2500X

Yamaha MU90R

Mastering suite

Digidesign ProTools 24

Yamaha 02R

Cedar DeCrackler, Dethisser

TC Electronic Finalizer Plus

Genelec 1031 monitors

Studer and Panasonic DATs

Selection of plug-ins

Outboard

Lexicon 480 LARC, 300, PCM90 and PCM80

TC Electronic M5000, M2290 and M2000

Eventide DSP4000E

Summit Audio DCL 200 tube compressor

Amek 9098 preamp EQ

Aphex Compellor, Dominator, Aural Exciter Type III and C2

Mics

A wide selection including Neumann, Microtech Gefell, Manley, Brüel & Kjær, Shoeps, AKG, Shure and Beyer

ASCAP ASCAP

# The truth is in here

words **Jonathan Miller** photos **Chris Barr**

## The secret behind composer Mark Snow's music for *The X-Files* is... a Synclavier. *The Mix* goes to Hollywood to investigate

One of the most evocative musical themes in television history. That's how Hollywood media moguls Warner Bros. once described composer Mark Snow's memorable contribution to the innovative, conspiratorial phenomenon that is *The X-Files*. Certainly there's no denying that this top-rating show's mark on televisual history is forever assured, and that for once, there's more than a modicum of truth in the marketing ploy opener.

But that was 1996, this is now. The fact that *The X-Files* has entered its seventh season as a top-rating show in the cut-throat, here today, gone tomorrow American broadcasting business is testament to its ongoing originality. And that Snow remains show creator Chris Carter's composer of choice is testament to Carter's perpetual faith in his euphonious compadre. Each artist clearly holds the other in highest regard. For his part, Snow is on record as saying he plans to stand by Mulder and Scully for the long haul, both on the small and big screens: "I feel a loyalty to Chris Carter and *The X-Files*. It's gotten me to where I am now." Whilst admirable, these sentiments are, likewise, not entirely unfounded.

> "Doing *The X-Files*, I'd say, is 85 to 95% a complete, positive thing. The only downside is people thinking 'Well, that's all he does; that's all he knows how to do"

So, a broadcasting phenomenon, scored by a phenomenal composer? Maybe. Yet Mark Snow remains something of an enigma. Born into a musical Brooklyn-based family in 1946, Snow began his own musical studies on piano at the tender age of 10. He later progressed to composition at New York's High School of Music and Art; and, finally (between 1964 and '68) a four-year spell as an oboe student and percussionist at New York's prestigious Juilliard School of Music. Pre-and post-graduation, his career took several eclectic twists and turns: from classical performance to co-founding the New York Rock & Roll Ensemble with Michael Kamen (with whom Snow recorded and toured) to pop album producing and finally turning his not-inconsiderable musical talents to soundtracks and relocating to Los Angeles in 1974. Here Snow began what he casually terms: "A slow, very pleasant ascension in the business – nothing really remarkable, until *The X-Files* came along."

So how exactly does a jobbing composer land such a high-profile scoring gig? Well, in the dreamlands of Tinseltown a mix of talent, luck, and, in Mark Snow's case, risk can help. After several years spent traditionally scoring by piano, music paper and pencil at hand, it transpires that Snow's accountant, of all people, was responsible for finally setting the music technology ball rolling – for Snow – big-style back in the mid-'80s, arguably a time of style over content. *Miami Vice* topped the TV ratings, and New England Digital Corp.'s second-mortgage-inducing, all-singing, all-dancing Synclavier 'übersynth'-cum-sampler/sequencer was king of electronica's hill.

For Snow, the attraction was strong, the product, seemingly unobtainable. "It was apparent that this was the way of the future – a self-contained electronic studio," he recalls. "My accountant asked, 'What does the most current stuff cost?' I said, 'Well, there's this thing called the Synclavier, but that's a fortune!' And he said, 'Shut up, you're gonna get it – even if we have to borrow, beg, or steal!' Well, at the time, the Synclavier did cost a fortune – about $110,000, just for the bare bones of the thing! And that wasn't adding on the extra voices, the extra memory, the extra outputs and so forth, which brought it up to at least $200,000!"

Quite a few bucks lighter, and, no doubt, several sleepless nights later, Snow found himself in the driving seat of the (then) world's most advanced musical instrument. Though understandably smitten with a ground-breaking technology that theoretically enabled completion of the scoring circle (from composition to finished recording), or at least a way of »

## selected kit list

**Keyboards/Sound Modules**

E-mu Proteus

E-mu Proteus II (Orchestral)

E-mu Proteus III (World)

E-mu Proteus 2000

Korg Wavestation SR

Kurzweil MicroPiano

NED Synclavier (128Mb RAM; 32 voices, with Power PC upgrade)

Roland [illegible] (32Mb RAM) x 3

Roland [illegible]

Computers

Apple Macintosh G3/266 desktop (Synclavier)

Apple 15" LCD studio display (Synclavier)

**Mixing**

Mackie D8B Digital 8-Buss

**Monitors**

Mackie HR824 active

Tannoy Gold keyboard station

Yamaha NS10M

**Miscellaneous**

KK Audio custom-designed keyboard station

KK Audio custom-designed mix station

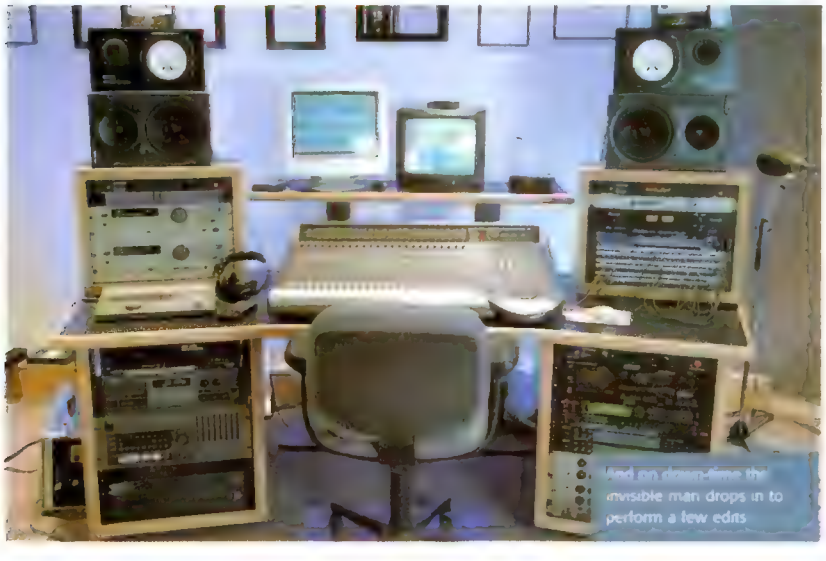
You don't need a skipful of outboard to hit the big time – just the right stuff

Listen out for the sound of E-mu's Proteus modules next time Mulder gets his ass whupped . Genius!

presenting a realistic electronic demonstration of a potential orchestral or acoustic score in a solo capacity, Snow's intentions remained true from the outset: "I really wanted to make it sound as musical, warm, and human as I possibly could, even though a lot of the stuff was *musique concrete* – just ambient sounds."

Yet, ironically, it was those very same 'ambient sounds' that would ultimately prove pleasing to Chris Carter's already well-attuned ears. "I was extremely fortunate," admits Snow. "A few years later, when I was really rocking on the thing, Chris came along and popped in when I doing some low-budget movie, all on the Synclavier. He was obviously impressed, and, luckily, I had my chops up for grabs at that moment in time." And the rest, as they say, is history…

By 1996 Snow had become something of an unlikely household name on the back of his expanded version of *The X-Files*' theme (a.k.a. 'Materia Primoris') hitting that coveted No.1 spot in several European countries.



And on occasion the invisible man drops in to perform a few edits

And where there's success, greater artistic freedom often follows. Carter effectively gave Snow *carte blanche* and Snow responded by widening the show's musical repertoire. "I slowly started getting into more melodic and harmonic stuff," he continues. "And, to my delight, nobody gave me any problems with that. They have a director, producer, or writer come and see every note of music for every show – it's a little strange, but it's how they work. It's wonderful; I've never had a situation like this, where I can do what I think or feel is right."

Scoring *The X-Files • Fight The Future* blockbuster in 1998 provided Snow with a welcome opportunity (and the necessary budget) to mix what he terms 'the cliché X-Files electronic sounds' with an 85-piece orchestra for the big screen – clearly a different animal to its long-running TV progenitor. Some might argue that working on the same project for years on end can be artistically damaging, yet Snow remains characteristically up-beat about the whole affair: "Doing *The X-Files*, I'd say, is 85 to 95% a complete, positive thing. The only downside is people thinking, 'Well, that's all he does; that's all he knows how to do. He couldn't write a nice melody; he couldn't do an orchestration.'

"Then, every once in a while, I'll make a demo of something that has nothing to do with *The X-Files*, I'll put it out there, and people hear this stuff, and say, 'Well, no, wait a minute, this would be great!' Some people are, hopefully, open-minded enough to think, 'Let's give this guy a shot with something else.'"

One recent supporter was none other than Hollywood lead Antonio Banderas, comfortably seated in the director's chair on *Crazy In Alabama*. Pitched as a poignant-yet-stirring comedy/drama that intertwines two unique stories against the backdrop of Los Angeles and the Deep South, Snow, once again, musically rose to the occasion with flying colours.

As Snow imparts, with a hint of pride: "The first piece of fresh, original music that Banderas heard from me was for a very moving '60s civil rights montage scene where there's a whites-only swimming pool,

with an African American protest taking place nearby. The 'Klan comes at night, and there's police and horses – a big melee. There's this moment when this little black boy, who doesn't want anything to do with it all, takes off his clothes, gets into the pool and just floats; and the position of his body, floating in the pool, is like Jesus on the cross."

Any creative premiere can make for a nerve-wracking experience – even for a seasoned professional like Snow. The composer smiles at the memory. "The producers all wanted my first meeting with Banderas to be good, but no-one quite knew what to expect. So I put this piece up, and all the people there just loved it. But Banderas said 'Let's hear it again.' And he heard it about three times, until it sank in. Then he stood up, almost in tears, and gave me a hug. So, from then on, it was great – a wonderful experience."

Even on these orchestral assignments, music technology continues to play an integral role in Snow's working methods. "Recently, because of the advent of newer samplers – and I have a bunch of those – the mocking up of the orchestra thing is now pretty amazing," he declares. "On the Banderas movie, I had the score all ready for him, mocked up on the electronics, so he could comment on it."

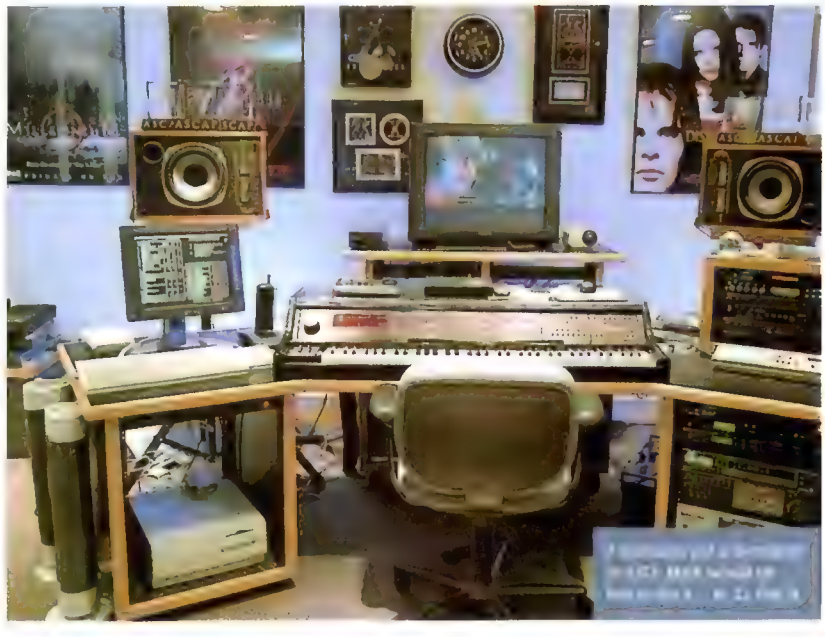
Despite owning four Roland S760s, Snow's trusty Synclavier remains at the heart of his current project studio set-up, doubling up as master keyboard, sequencer, and main sound source. And though this ageing beast is somewhat dinosaur-like in present-day technological terms, evidently this makes no difference to Snow, a fervent champion through and through.

"A lot of the other devices sort of do have a sound," he grants. "Some people think the Synclavier has a sound too, but it only has the sound you want it to have. It stores any sounds you want – you recall them – it's just so quick and the digital recording part of it is so amazingly elegant and fast. The sequencer may not be as powerful as other things, but when you're doing the kind of music that I am – background scoring – then it's fine."

Coming full circle, the Snows have recently moved house, a move that entailed relocating Snowtunes, Mark's private, compact former backyard studio, inside the new house. No more hiking several feet down the back garden when inspiration strikes. That said, "it has its own private entrance, so my wife can still have some privacy with me working at home," Snow grins. He certainly has every right to smile. His new work space sounds (and looks) idyllic. What, then, can we expect from Mark Snow next?

"I'm asking myself that, too! Actually, at the moment there's nothing new on the horizon. It's suddenly hit me: I'm just gonna take Paul McCartney's advice and let it be. I guess I've been hustling, doing, and being ambitious for so long that it's starting to become a bore. I don't need to do it. I'll let it be, and see what happens from there."

"Who knew that *The X-Files* would be such a success? We all thought, 'Oh, this is good, we're having fun here.' But no way did anyone think it would take off the way it did"



# help file

Problems in the studio? Ghosts in your machines? Contact the *Help File*, where our team of audio experts try to to solve your technical torments

## glossary

**Automated**
In the context of mixing, the movements of controls, especially faders, are programmed by the user and replayed automatically. Many automation systems allow you to edit the fine points of an automated mix.

**Band-pass**
A filter 'shape' used in equalisation (see EQ). This type of filter allows a band (range of frequencies) to pass through, excluding anything outside that range. Other filter shapes include band stop, high pass, and low-pass

**Benchmark**
Name for tests that can be used to compare performance between machines, common in the computer world for comparing operating speeds and so on.

**BIOS**
Basic Input/Output System (this is the 'firmware' (on chip software) that gives a computer life. It tells the CPU where the devices are that it needs to come alive and configures certain hardware and software parameters.

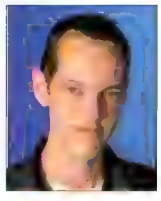
**Controller**
Name for a particular MIDI message type used for adjusting parameters such as volume, pitch bend, and so on. A number of controller numbers are reserved for specified parameters, according to the official MIDI specification, but the rest can be used for product or application-specific control. Essentially, they're an indispensible way of adding variation to an arrangement.

## the masterminds

this month's *Help File* team

NAME: Trevor Curwen
OCCUPATION: producer/engineer
CHOSEN SUBJECTS: vintage gear, high-end processors, guitars, microphones, tartan

NAME: Adam Crute
OCCUPATION: technical writer
CHOSEN SUBJECTS: PCs, music software and hardware, internet, herbs



NAME: Oz Owen
OCCUPATION: *TM* reviews editor
CHOSEN SUBJECTS: Logic Audio, MIDI, processors, consoles, polyester

## The mastering game

**Q** I'm a student of the SAE Hamburg (audio engineer) and I'm writing my diploma about "Mastering - the development of sound over the last two decades". Maybe you can help me to find some information about this topic?

**Thomas Riepen, by email**

**A** Mastering can be a tricky business, and it's difficult to give a definitive 'how to' guide that works for everything – each track to be mastered needs to be taken on its own merits, and will benefit from a mix of EQ, dynamics and precise stereo imaging before moving on to the pressing plant. While some tracks may need very little or even no adjustment during the mastering process, other tracks could only be described as 'a right two and eight' and in need of some serious salvage work. To this end, learning about mastering is no easy business.

Anyway, a good place to start for some background info is www.drtmastering.com/bottom2.htm, or www.sharkfindigital.com. You could also try checking out PC Publishing for some books on related subjects: www.pc-publishing.co.uk.

**Oz Owen**

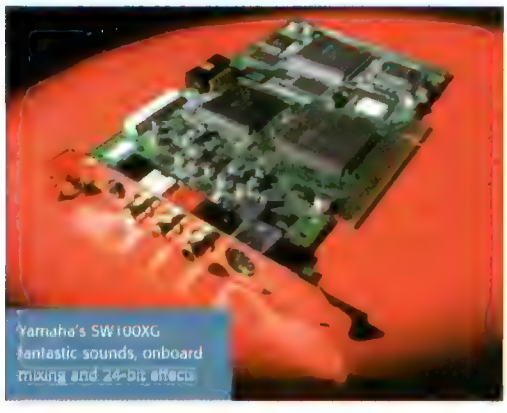
## Have your cake...

**Q** I will be getting a 500MHz PC soon and want to write dance music on it. I have a copy of Cakewalk 8, and I want to get Rebirth, or a similar analogue-synth emulator. I will also need a pretty good soundcard and some kind of sampling software. I have about a £1,000 to spend.

Is Cubase or Cakewalk better for dance music? I assume they are similar, but your magazine deals almost entirely with Cubase. What soundcard is best for around the £500 mark? Possibly the most important thing for me to consider here is good drum sounds for drum 'n' bass.

I also need your advice about a good sampling package. Which package allows easy use of sampled sounds for programming drumbeats, basslines and so on? I appreciate you must get a lot of requests of this type, but I would be extremely grateful if you could help me out, or even point me in the right direction.

**David Cleave, by email**



Yamaha's SW100XG fantastic sounds, onboard mixing and 24-bit effects

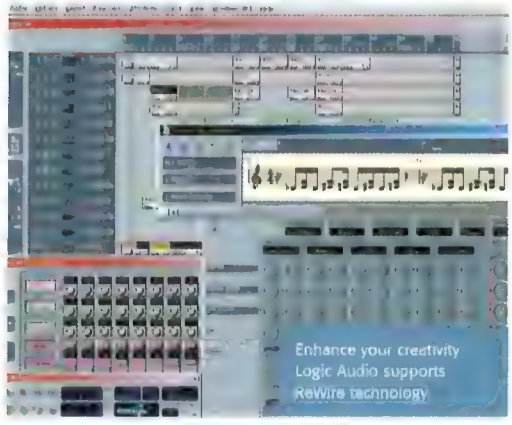
A Hmm, I just love those 10 part questions! Firstly, you don't say whether the PC is included in the £1,000 or not. And seeing as a 500MHz PC with a few decent peripherals will cost you around £1,000, leaving you enough cash for a swift half on your way back from 'PCs-R-Us', we'll assume that the PC has a separate budget. Anyway, let's take the questions one by one. You need a pretty good soundcard. The SW1000XG from Yamaha (£449) is pretty damn good, offering fantastic sounds, onboard mixing, multiple 24-bit effects and a degree of expandability. It can record and play back audio, but it can't be used as a sampler in the true sense of the word. Alternatively, Creative Labs SoundBlaster Live! Platinum (£179) soundcard can be used as a more traditional 'sampling' type card, with user-definable Sound Fonts enabling banks of sounds to be loaded into the card and played from the keyboard. It also has good sounds on it, but perhaps not as good as the SW1000XG.

The two cards can be run in tandem, giving the best of both worlds, but if you're a bit shaky when it comes to installing hardware and ensuring no conflicts, this option might be best avoided.

Regarding the sequencer, if you have Cakewalk and you're used to it, why change? Why indeed. Most people in this country tend to go for either Emagic's Logic or Steinberg's Cubase, and both of these support ReWire technology which enables the use of soft synths (like Rebirth) to be used within the sequencing program, a feature that can make life/creativity very easy. Entry-level versions of each are available for around the £100 mark and may be worth a look, if only for the extra features on offer.

Alternatively, if all you're doing is dealing with samples, why not take a look at Sonic Foundry's Acid Pro software (£249)? Cut-down versions are also available, starting at £39, and Acid is essentially a loop-based audio sequencer that supports plug-in effects and real-time time-stretching.

**Oz Owen**



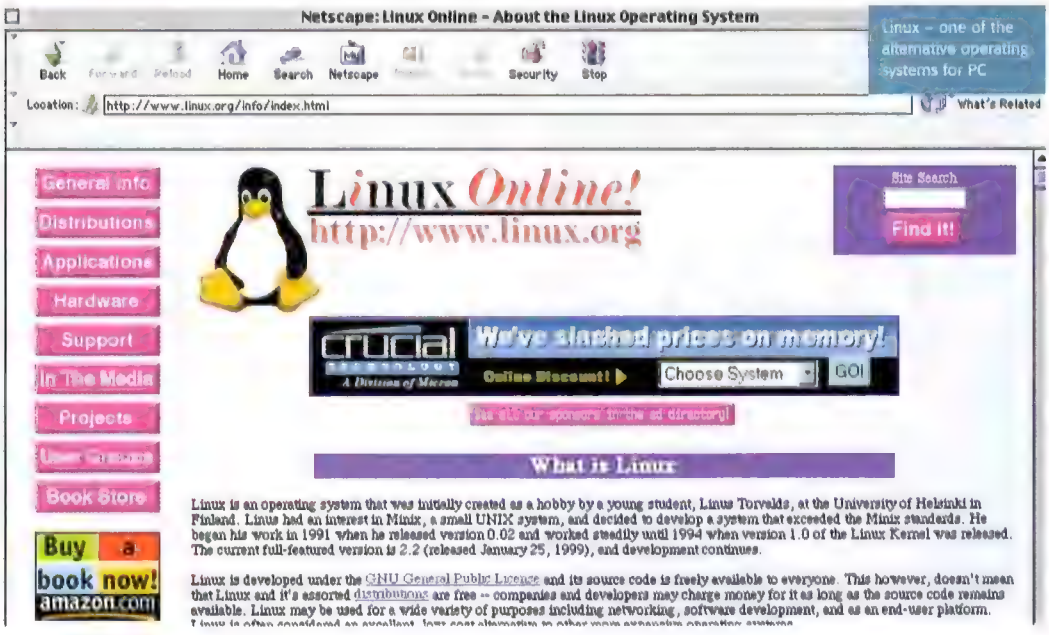

## To Linux or not to Linux

Q I recently saw a programme on television about a new PC operating system called Linux that's made by programmers from all around the world. In this show, the experts were saying that the Linux OS is much more stable than Microsoft Windows – 95, 98 and they reckon Windows 2K – therefore much more efficient. As if that wasn't enough, you get it totally free because it is made by the people, for the people.

So I was wondering if you guys at *The Mix* could find it in your hearts to help me with my quandry; do I go for Linux or stay with Windows? Maybe you could run some tests to see which audio programmes work with it, and check the crash ratios between the two operating systems.

**Simon, by email**

A There are various PC operating systems out there and not all of them come from the Microsoft stable. Linux is a prime example, and as the program you were watching said, it is often regarded as being better than Windows in many respects – it takes up less room on your hard




## glossary

**Control surface**
The whole or part of a unit that hosts controllers such as faders and knobs. No audio passes through it, as opposed to many analogue designs, where the controls are audio components

**Duplex**
The ability of a soundcard to play and record audio at the same time. 'Full duplex' means there is no loss. For example, some soundcards operate with reduced sample rate on the output in duplex mode

**Effects**
Anything, software or hardware, that alters the nature of a signal, such as a reverb unit, pitch shifter or Vocoder

**EQ**
Equalisation. Frequency (pitch) selective filtering of audio in order to boost or cut levels inside the specified frequency range (bandwidth)

**Filter**
A circuit that operates on a selected frequency range. For example, a high-pass filter lets only frequencies above a selected range through. Common controls are frequency selection, Q (frequency magnification at resonance – in band-pass filters this can be though of as bandwidth), and level

**Mastering**
The process of fine-tuning a track before committing to mass duplication, paying particular attention to the stereo image, the overall frequency balance and the dynamics

**Mixermap**
Graphic interface provided by software such as Cubase and Logic Audio for creating specific MIDI tasks such as a synth/FX editor. Mixermaps can be saved and loaded as separate files

**MTC**
MIDI Time Code. A representation of SMPTE timecode within the MIDI data protocols

## glossary

**Multisampling**
Using multiple samples to represent a single instrument. The samples are usually selected depending on MIDI velocity and pitch

**Optical**
Alternative to the coaxial and balanced line digital connections. The cable is optical fibre. The most popular standards in optical connections are S/PDIF and ADAT Optical

**Outboard**
Term used for peripheral equipment that doesn't directly generate or record audio. Includes effects processors, pre-amps interfaces, and so on

**Sample rate**
The number of single 'snapshots' of an audio waveform used to describe that waveform in the digital domain, per second. For example, the CD sample rate of 44.1kHz infers a single 'sample' signal level 44,100 times per second

**Slave**
When synchronising more than one machine, one must be the master, and the rest must be slaves. The slaves receive the timecode and/or transport control from the master

**[illegible]**
card' that acts as an audio interface, such as the Creative Labs SoundBlaster series, the Digidesign Audio Media III, Korg Oasys and so on

**Voices**
Usually refers to a synthesizer's polyphony or multitimbrality (number of instruments that can be played at the same time)

**[illegible]**
Yamaha's MIDI protocol compatible with both GM and Roland's GS and including extras such as three simultaneous drum kits, effects, and (in the case of the SW1000XG) 64-note polyphony

drive, it uses less of your system's precious resources (memory, processor time), is allegedly more stable and is, to all intents and purposes, free. And to some people, the fact that Microsoft have absolutely nothing to do with Linux is a distinct advantage too. However, there is one very large fly that sits atop this veritable vat of ointment – support.

Firstly, there aren't many companies that supply Linux drivers for their hardware, meaning you have to either write your own(!) or scour the internet in the hope that someone out there has already written one for your particular hardware. The second problem is software. Although there are a few Linux software packages available, these tend to be word processors and network applications (networking being the key thing that Linux was designed to do). There is no such thing as Cubase for Linux... yet.

So despite the advantages, until software and hardware manufacturers start supporting Linux, there's little point in changing over to it. Of course, as it's free, you could set up a dual-boot on your PC allowing you to choose between booting to Windows or Linux. Our advice to you, though, is to wait. If it's as good as people say it is, we shall be seeing more and more of Linux over the next few years.

**Adam Crute**

## Trigger unhappy

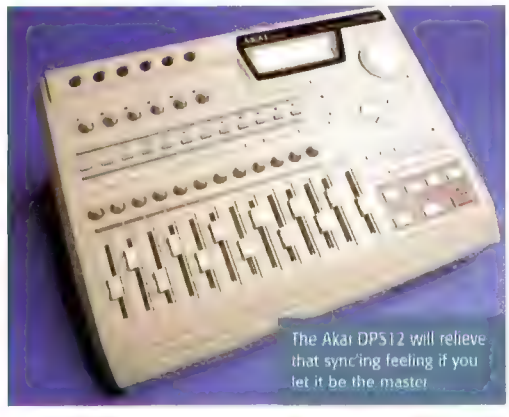
**Q** I have an Akai DPS12 (which is superb!) and have recently acquired a Roland MC303. I'm having difficulty getting the 303 to trigger the DPS12 to start recording. Any tips? The manuals are confusing, to say the least!

**Dave, by email**

**A** I'm not surprised you're having trouble Dave, you Brandon Block, you! The MC303 doesn't do MMC, or MIDI Machine Control, it puts out MIDI Clock, which is considered far too loose for accurately sync'ing hard disk recorders.

The answer is to use the Akai as the master. It still sends out MIDI Clock, but the MC303 will respond to it. Set the MC303 to external clock/sync and press the play button to engage standby mode. Now when you start the Akai, the MC303 will spring into action as well, thus relieving that 'sync'ing' feeling you're having when recording. Ho hum.

**Oz Owen**


The Akai DPS12 will relieve that sync'ing feeling if you let it be the master

HHB CIRCLE

STUDIO MONITORS

**ACADEMY OF SOUND**
Stoke on Trent Tel: 01782 205100

**ANDERTONS MUSIC CO**
Guildford Tel: 01483 456777

**DAWSONS**
Warrington Tel: 01925 632591

**DIGITAL VILLAGE**
Barnet Tel: 020 8440 3440
Birmingham Tel: 0121 687 4777
Bristol Tel: 0117 946 7700
Croydon Tel: 020 8407 8444
London W3 Tel: 020 8992 5592
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**EDDIE MOORS MUSIC**
Bournemouth Tel: 01202 395135

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London SW16 Tel: 020 8769 5681

**THE GUITAR & AMP CENTRE**
Brighton Tel: 01273 676835

**THE M CORPORATION**
Nottingham Tel: 0115 947 4070
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*Above (left to right): HHB Circle 5 midfield monitor (active and passive versions available), HHB Circle 1 powered sub-woofer, HHB Circle 3 nearfield monitor (active and passive versions available).*

*Left: Mick Fleetwood with HHB Circle 5 active midfield monitors and Circle 1 powered sub-woofer.*

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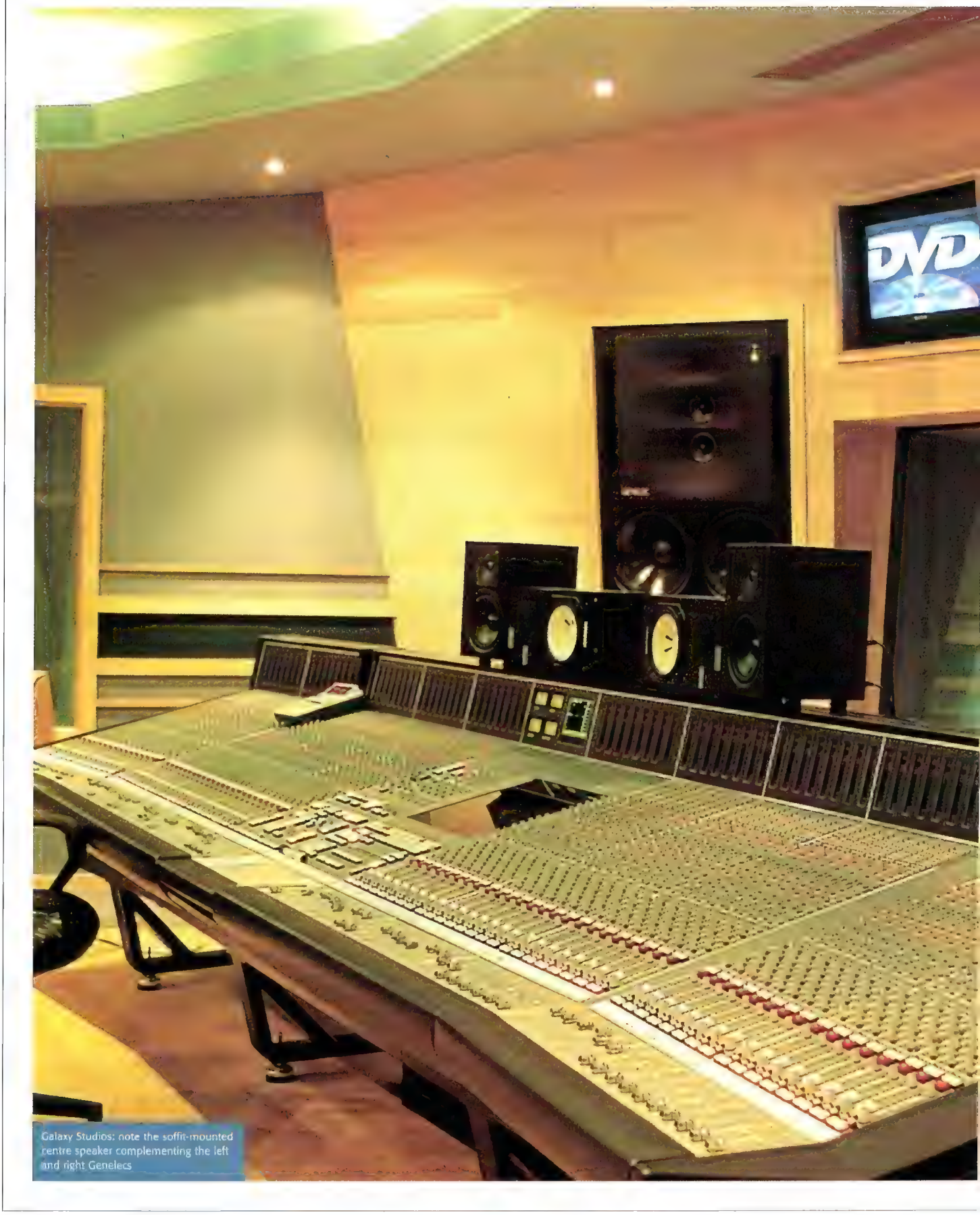
**FIRST WE LISTEN**




Galaxy Studios: note the soffit-mounted centre speaker complementing the left and right Genelecs

# Hear no evil

part four

In the last part of this series, we look at the increasingly important issue of surround sound monitoring, plus a round-up of the various systems and delivery formats currently in use

words **Chris Kempster**

In the previous instalments of this series, we've looked at the various issues regarding setting up and installing studio monitors in a traditional stereo configuration, the way in which most music has been recorded and mixed over the past 30 years. However, as we enter the 21st century there's been an upsurge in the use of surround systems in the cinema and the home, and this is certain to be one of the main activities that professional studios will be involved with in the coming years. Naturally, monitoring is a super-critical part of this emerging area of sound, and in this article we'll be looking at what the experts are recommending at this point in time, plus outlining some of the technologies involved in surround sound.

## Surrounded

Before we look at the specifics of speaker placement and room design, it's worth getting an overview of the current state of play in surround sound. There are currently a variety of different systems for surround sound, and an ever-increasing number of delivery formats, but the objective of all of them is the same. That is to provide a more realistic listening experience than stereo – whether it be for music, film or TV – and in tests it's been shown that while most people have trouble telling the difference between mono and stereo, virtually all of them could recognise and appreciate the difference between stereo and surround sound.

But what constitutes a surround system? You could connect another pair of speakers to your stereo amp, position a speaker in each corner of the room, and you'd have a surround system, surely? Well, you are surrounded by sound, admittedly, but it isn't a surround system. That's because there's only stereo information (left, right) contained in the recording, and by duplicating this in another set of speakers does not give you surround information. What a surround system does is give you rear information as well, so you have front left and right, and back left and right i.e. positional information through a full 360 degrees.

This is what all surround systems aim to deliver, but they do it in different ways. For example, the common 5.1 format achieves it by front left and right speakers, back left and right speakers, a centre speaker, and a subwoofer (the '.1' in 5.1) commonly called the LFE (for Low Frequency Effects, but also called the 'boom' channel as it's used most often for earthquakes, explosions and other effects). This isn't the only way of delivering surround sound, though, and there are other commonly used formats such as three channel (stereo front speakers plus mono surround), four channel systems (three front speakers and mono surround) like Dolby Pro Logic, five channel (three front speakers and two surround) and seven channel (Sony's SDSS format).

While most home systems err on the side of prudence, it's generally considered that the more channels the better, and the biggest systems even add speakers for height information (Tom Holman, inventor of THX, is rumoured to be experimenting with a 10.2 system that uses stereo height channels). It's not all confined to the laboratory either; the next *Star Wars* film will use the new Dolby Digital EX6.1 format, which employs a centre rear channel, and IMAX-based rides like Back To The Future at Universal Studios use up to 14 channels.

It might get a little confusing, but the general upshot is that surround is (a) good and (b) here to stay. For the purpose of this article, we're going to base things around a 5.1 system, since this is the most likely configuration studios would use right now. Remember that, while we won't be recapping on all the points covered in previous articles, they all still apply to surround monitoring systems as well. Okay, let's get started...

## 1. Speaker positioning

As you can see from Fig.1, the set-up of monitors for surround systems is very different to that of a standard stereo system. All the speakers (except the LFE) should be placed on an imaginary circumference drawn around the engineer's position in the middle. The standard 60-degree spread between front left and right speakers is retained, with the centre speaker between them. The rear speakers, however, should be between 100-degrees and 120-degrees away from the centre position, though the precise point isn't critical. All speakers should be the same distance from the »

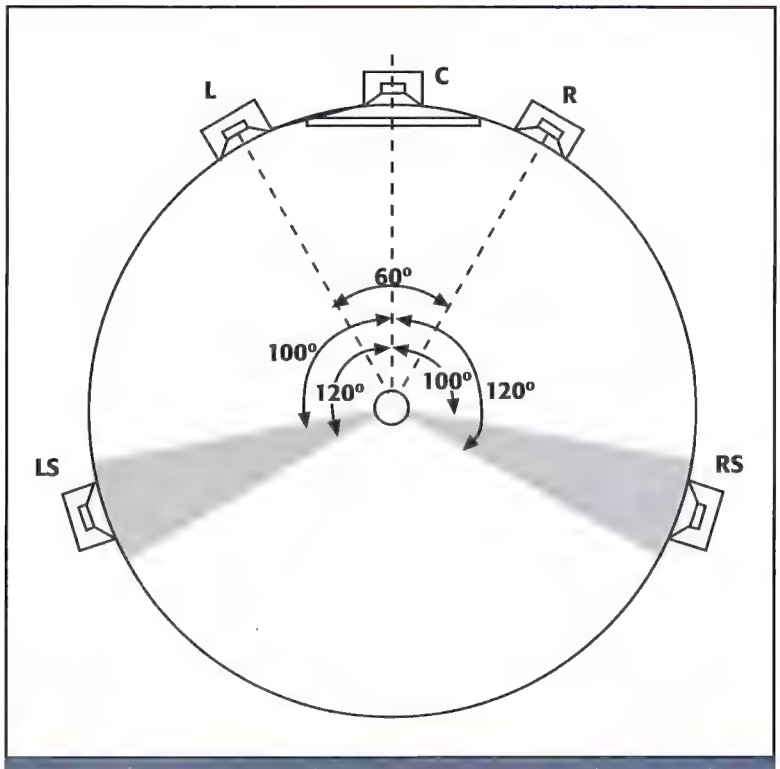



Fig.1: The correct set-up of speakers in a 5.1 system. Note that while there is flexibility in the position of the rear speakers, the front left and right and centre speakers positions need to be exact.

## useful websites

There's plenty of info on the web regarding surround sound. Here's a few useful addresses:

- www.[illegible]
- www.[illegible]
- www.dolby.com
- www.dtsonline.com
- www.[illegible]
- www.genelec.com
- www.martinsound.com

## Delivery formats

Surround sound discs are available in a variety of guises, and this is set to increase in the near future. Here's a quick guide to what's what...

### DVD-V

The most common surround format right now is DVD-Video, which is what all those DVD movies are on. DVD-V allows multi-channel sound on its audio portion, and also has a limited 24/96 capability (two tracks only). There are up to eight audio tracks available, which means you could have Dolby Digital, MPEG-2 audio, DTS or SDSS.

### DVD-A

Though the standard for DVD Audio has been agreed, there won't be any on the market until the encryption and watermarking have been agreed upon by all the manufacturers. The advantages over DVD-V are that DVD-A allows multichannel 24/96 audio, and it has both a higher sample rate and word length than DVD-V. This means two things; being able to sample at 96kHz gives an increased bandwidth (48kHz) and having a longer word length gives an increased dynamic range (a theoretical 144dB). Given that DVD-A also has a two-channel only 192/24 program, you can see that it has possibilities...

### SACD

Super Audio CD is a format devised by Philips and Sony that uses two layers on one disc; one for high quality multi-channel audio, the other for CD audio. This means that you can play SACD on normal CD players, and you can play CDs on a SACD player. SACD uses DSM (Direct Stream Digital) to get its high quality audio, and while there's no doubt it is a quality format, the difference between this and DVD-A is considered to be minimal.

### DTS

This is the odd one out here, as a DTS disc is actually a CD-ROM containing 5.1 DTS encoded data recorded at 44.1kHz with 20 bits. There's no video or graphics on a DTS disc, though it can be encoded onto DVD-V and DVD-A discs. A decoder is needed to use DTS discs, though most current players/receivers have this built in

listener, since a time delay would mean corruption of surround positioning information. If the room shape makes this impossible, then it's okay to introduce a delay to make sure sound arrives from all speakers at the same time.

## 2. Speakers at same height and upright

All the speakers in the system should be placed at the same height, and should be in an upright orientation. The majority of surround information is contained within the mid and high frequencies, and by placing speakers on their sides means that even a small movement of the engineer's head off axis will destroy imaging.

## 3. Centre speaker above video monitor

When using a reflective video screen, it's better to place the centre speaker above rather than below. This firstly means there are no floor reflections that might cause colouration in the midrange, but will also prevent reflections from the screen itself. Remember that those midrange frequencies are all important in surround monitoring, because that's the bandwidth that speech falls into. The centre speaker should also be placed upright for the reasons explained in point 2.

## 4. Symmetry

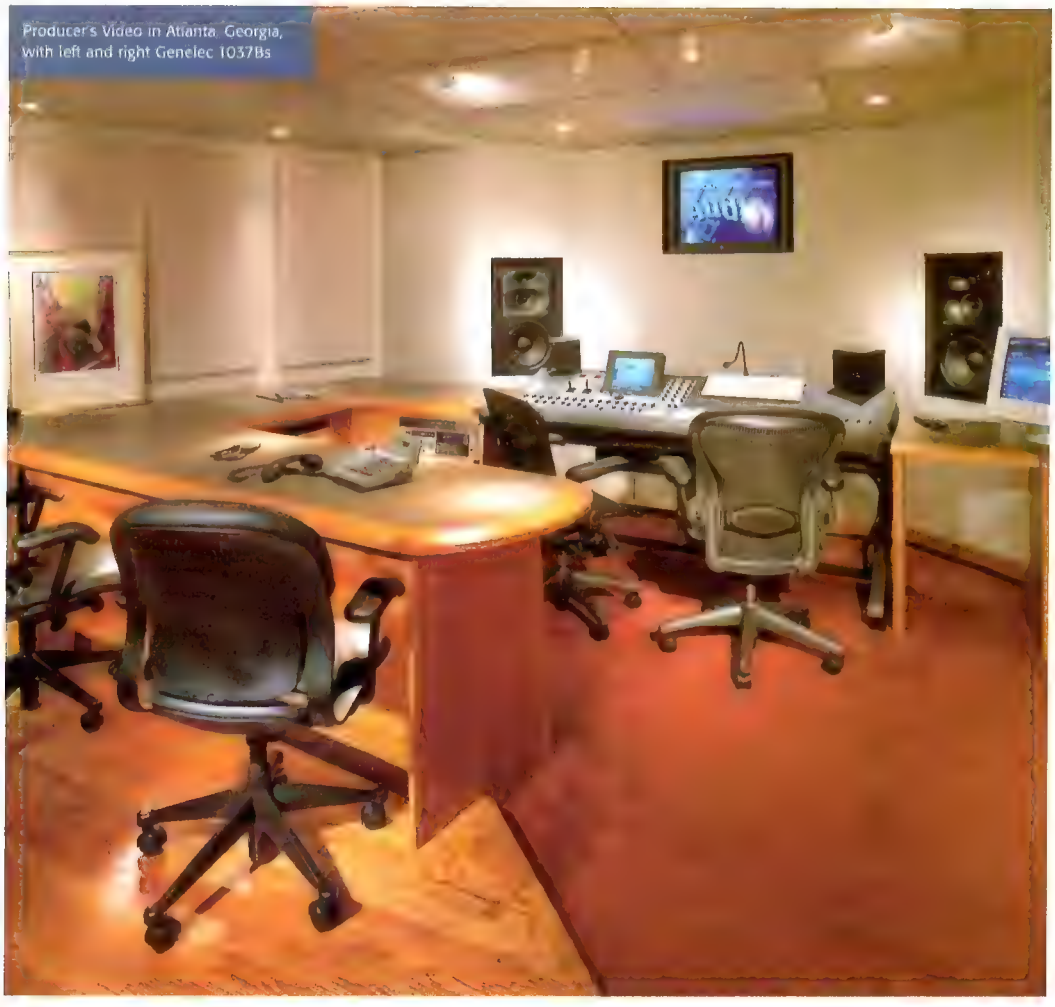
We talked about symmetry of the installation (i.e. positioning of tables and equipment racks) in a previous instalment, but it's even more important when it comes to surround sound. Basically, you want as few reflective surfaces as possible between the listener and the speakers, so only put absolutely essential items of equipment in this area. Reflections will disrupt imaging, so these must be kept to a minimum. Make sure the objects you do have in this area are symmetrical (e.g. a rack in the same position on each side of the listener) to give consistent L-R imaging.

## 5. Same speakers all round

It is generally accepted that the same monitors should be used for back and front to achieve coherence in the soundfield. For some material that has ambient information (movies, classical music), it might be considered okay to have one or two dipole speakers (speakers with a figure-of-8 directional pattern) at the rear, and many home theatre systems use these smaller, lower powered units. However, for most rock, pop and dance music, direct radiators (speakers which direct all the sound towards the listener) are the better bet, as these will contain actual musical information rather than just ambient effects.

## 6. Bass management

LFEs in a surround system were originally intended to carry signals not included in the main channels, sound effects in movies for example. However, there are other uses, the main one being to use the LFE as a sub-woofer to the main channels, especially when using nearfield monitors that have a limited LF response. The reality is that almost all home systems use some kind of bass management system. These usually take all frequencies below a certain point from the main



Producer's Video in Atlanta, Georgia, with left and right Genelec 1037Bs

channels, say 80Hz, combines them along with the signal for the LFE channel, and mixes them into the speakers most capable of handling them. This is usually the LFE unit itself, but if this doesn't exist then probably the front L and R speakers. The advantage is that the frequency response of the system can go much lower.

## 7. Acoustics

As mentioned before, all the acoustic rules we outlined in previous articles hold true for surround systems, but there are a couple of points worth reiterating. Firstly, the room should be symmetrical in relation to the speakers, so the distance from the Left back speaker to the wall should be the same as the distance between the Right back speaker and the opposite wall. The high frequencies are so important for surround information, so make sure reflections are (a) kept to a minimum and (b) symmetrical when they do occur. Naturally, the shape of the room is just as critical for monitoring in stereo, and there will no doubt be much debate over the next few years over the merits of different designs and construction materials. Needless to say, it's beyond the scope of this article.

## And finally...

As you've probably gathered, surround sound is not a particularly straightforward subject and one that we could probably run a whole series on (*now there's an idea – Ed*). We're in quite a rapid stage in its development right now and there's bound to be much excitement and debate over the coming years. We haven't even touched on the various recording techniques that take advantage of the possibilities of surround sound, and this is a particularly mouth-watering prospect. With more and more equipment featuring surround capabilities (panning on digital mixers like the Yamaha 02R for example) this is a technology that is within the reach of many project studios, and it doesn't take a great leap in the imagination to picture many of your studios evolving into fully-fledged surround facilities.

All that remains is for me to round off this series by reminding you that while it's fine to spend hours looping those samples or tweaking the EQ on your desk, just take a moment sometime to think about your monitoring system and ask yourself if what you're hearing in your studio is really an accurate representation of what is coming off your multitrack (or hard disk). It could be time very well-spent indeed...

***Thanks to Chris Anet at Genelec for his expert help in putting this series together.***
***All pictures courtesy of Genelec OY.***

## Surround systems

Dolby Digital, DTS and Sony Dynamic Digital Sound (SDSS) are the main systems used in movie theatres today, with Dolby Surround in the process of being phased out. In the home, formats like Dolby ProLogic are common. Here's a brief guide

### Dolby Digital

This uses the gaps between the sprocket holes in film to digitally encode a 5.1 (six channels) soundtrack into a single bitstream, then decodes them into separate streams for playback.

### Dolby Surround/ ProLogic

This system encodes four channels (L, C, R and back) into two channels which can be played back in either mono, stereo, or multichannel. With a passive decoder you get the one surround channel which would be played back through rear L and R speakers. ProLogic is an active decoder that adds an extra channel (front centre) and gives better channel separation

### DTS

With this system, a CD-ROM containing the encoded audio is sync'd to the movie by a timecode track on the film.

### SDSS

Using an encoded signal outside the sprocket holes on either side of the film, SDSS uses a 7.1 format which adds extra centre left and centre right channels to the front speakers.

### THX

The Tomlinson Holman Experiment (THX) was a range of technologies developed by Lucasfilm for the theatre and latterly for the home. Both the acoustics and the playback equipment are specified in this system, the aim being to standardise the sonic environment so that listeners everywhere hear as close as possible to what the mix engineers intended at the dubbing stage

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# a&r dept

Your demos rated or slated by *The Mix* and our discerning record industry pals. Meet this month's team...

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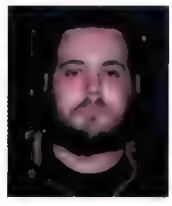
A&R, Columbia Records

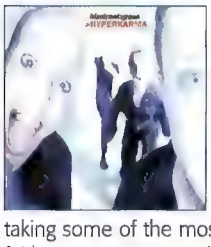
Luke Cunningham
Label Manager, Freedom 4



Sam Winwood
A&R, Sony S2

Sil Willcox
MD, Cruisin Music

## BLACK NOT GREEN
## HYPERKARMA



TM: These guys have already had a shedload of coverage for their rocky/ambient dance nuances, and deservedly so. They are really adept at taking some of the most exciting elements of fairly recent trance, ambient, jangly pop, rock, and moulding it into a gorgeous fusion. I'll bet they're an absolute stonking live act too.

Sam: Could this be the next Jesus Jones? and is that an insult or compliment? Dunno, but I liked it anyway.

Sil: Phasing on lead vocals always leaves me wondering if anyone can actually sing, and is not a good way to try and initially interest a record company. However, the actual song is very strong, well-produced and commercially instant, reminding me of early Todd Rundgren in places.

Luke: Psychedelic techno trance anyone? I dunno. Confused but fun with a great chorus.

Simon: Oh no! A Kula Shaker copy band. All 'ultra global/generation breakdown/spiritualistpsychobable' lyrics with rock guitars and Indian-style swirlies everywhere. KS once did it so well, and should not be copied!

**More from: info@blacknotgreen.com**

## IAN HABGOOD
## DEMO

TM: I love housey pianos, me. And it's just as well that I love sultry female vocals too, cos that's exactly what's on offer here. That's the plus side. On the downside, it seems that Ian hasn't totally grasped the concept of songwriting, and has a need to cram all of his ideas into one hurried, track. While I can empathise with where he seems to be coming from, Ian needs to be a lot more focused and let the songs shine through on their own.

Sam: The production feels very disjointed.

Sil: The alluring vocal in the verse haunts a cool jazzy vibe; unfortunately the arrangement meanders too much and needs more bollocks when it hits the chorus. Also, I find the track far too long.

Luke: The vocals here just annoyed me. I don't know why, but I instantly hated it.

Simon: An out of tune and awful jazz/late night female vocal trying hard to be sultry, a bit of a jazz chord here and there and then it goes all Depeche Mode and then bigbeat, for God's sake. Really awful. Come on Ian, you just wanted to impress her with your synth skills, didn't you mate?

**More from: ian@habgood.fsbusiness.co.uk**

## JEM
## THE ROAD TO INSANITY

TM: On the face of it there's a kind of naff pub band mentality going on here. But looking beyond that, there is some impressive song-writing ability at work in the crazy world of Jem.

Sam: Nasty drum sounds; is it really meant to sound this cheesy?

Sil: The seemingly uninteresting beginning cleverly leads to a very strong chorus line, but the hook line is overdone. Unfortunately, the effects used in the middle eight have no relationship with the song. In brief, the introduction of far too many styles ruins a potentially good song.

Luke: It sounds like Big Audio Dynamite with a major hangover.

Simon: This is really like an early pub rock band that just discovered drum machines and similar technology: distorted vocal effect, one finger dinky plastic synth riff and loads and loads of 'SPX 90 Orchestra Reverb' on the snare all mixed up with the guitars. None of this in itself is bad, but it's how you use it that counts! This lot should really consider staying in the pub and drinking - they might get a better idea.

**No contact details supplied**

## a&r checklist

We receive a mountain of tapes every month, so to maximise your chances of having your demo reviewed (and, if you're really good, getting on *The Mix* CD) we need you to provide the following:

- Decent quality cassettes, (preferably chrome type II), CD, DAT or MiniDisc.
- A kit list of the gear used to produce the demo.
- A biography of the act. We want to know all about you, your studio and your production background!
- Artwork. This can be a picture of the act, or maybe an original groovy graphic.
- Most important of all, send us extremely cool music that genuinely deserves to be going places.

**Unsolicited packages might be accepted at the following address:**

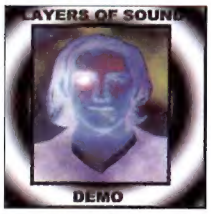
***A&R Dept,***
***The Mix*, Future Publishing**
**30 Monmouth St,**
**Bath, England BA1 2BW**

## DAVID NIX
### MAKE IT HAPPEN

TM: This kicks off in a kind of U2 way, with crashing walls of sound. Think *Achtung! Baby* or even parts of *Pop*, and you'll be on the right track. It's all really well-played and placed in the mix in a Flood/Eno kind of way, but there's also a bit of a Rush/power pop nuance going on, which is a smidge annoying at times. Also, the vocals miss the point a little, sounding like a cross between an agitated and angry Green Day effort colliding with Bowie on a bad Tin Machine day – probably not a pretty sight.
Sam: Good track. I'm not 100% convinced by the vocals, though.
Sil: This track has exceptional charm and wicked appeal, not only to me but also to two other major A&R executives that I took the liberty of playing this to (as I felt they deserved a sneak preview and might like it). A strong hook line and powerful vocal convinces me that this will probably get signed in the not-too-distant future. One to look out for.
Luke: Predictable power pop; sound ideas but the songs are very hit-and-miss.
Simon: Horrible! David Nix wants to be David Bowie circa 'Starman' and sings about "how lucky you are to have friends on a different star!". I agree. It would probably be a good idea for you to join them, Mr. Nix, as they might not realise how bad this is.

**More from: David Nix Tel: 01225 465243**

## LAYERS OF SOUND
### DEMO




TM: Let's leave this one in Simon's court, shall we?
Sam: We've heard this all before.
Sil: It adds up to its name and is well-done, but it's not really a commercial release and therefore, as a track, it's no use to a record company. It has possible potential for incidental music for soundtracks.
Luke: Good quality progressive drum 'n' bass with plenty of bite and attitude, but nice keyboard and synth touches lifted this above the norm.
Simon: Guess what? Layers of Sound make... layers of sound. But there's some cool textures and very pretty chord changes, and a bit of a melodic theme that nearly develops into something, even though it's all very lo-fi. This is good because it's synths, textures and atmosphere, but with a musicality to it – it's not just about 'Hey, I've got a new module and I'm going to use it'. It does, however, go on a bit, as they seem to run out of new ideas as to how to progress the themes, and for this kind of music one needs to be essentially a 'modern classical composer', if that makes sense. Look to traditional and modern composers for reference, and study how they developed musical themes and melodic structures in a piece without recourse to the tradition of song. This is a very difficult musical form, often self-referential and of no use to anyone other than synth salespeople.

**More from: mike@mnewstead.freeserve.co.uk**

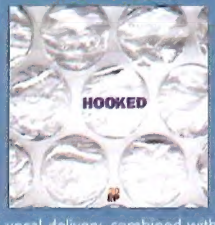
## GLOWGEORGE
### SALVAGE

TM: This kicks off with a very cool percussion loop (although I'd have preferred it if the tambourine pattern wasn't so damn annoying), and a well-programmed drum part all round. The trouble is, two minutes later, not a whole lot has evolved. Now call me old-fashioned, but I like a bit of structure when I listen to tracks, and this offering needs to grab the attention more. It's an impressive start, make no mistake. But for the moment a start is all that it is. There are obviously some funky ideas swirling around the head of our glowing friend, but he really needs to sort out what direction he wants to go in. Experimental could work, as could mainstream, or concentrating on production. Whatever he chooses, it's a decision that needs to be taken before he loses any of the credibility that this shows he deserves to retain.
Sam: Good production, but the whole thing didn't really grab me.
Sil: It has a limp feel that ends up nowhere.
Luke: God, this track took a long time to go anywhere, and when it did finally pick up it still wasn't doing enough to keep me interested for long.
Simon: It starts with a percussion loop and didgeridoo, goes 'whoompf', then stops. Very, very strange – almost a non-musical form. Perhaps this is pure genius, perhaps it's just pure rubbish.

**More from: glow@george44.freeserve.co.uk**

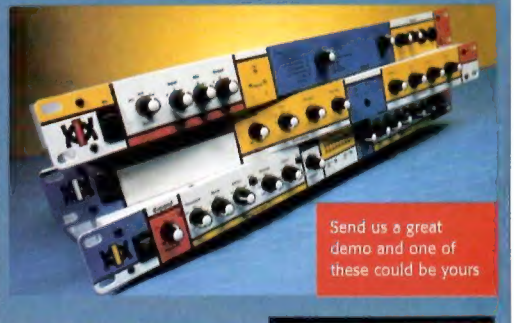
## demo of the month

### HOOKED 20 EP




TM: Hooked are one of those rare breeds who seem to effortlessly combine classic styles with a bang up-to-date cutting edge nuance. The classic bit lies in the Sade-esque arrangements, and Suzanne Vega (ish) vocal delivery, combined with a classy live feel. God knows how the modern bit works; suffice it to say there is a timeless quality to the whole affair, which probably stems from the pure experience of playing and absorbing. Production-wise, Hooked have a great concept of space – both in terms of the mix and the subtle timbral nuances they employ. There is a rare quality at work here, and it really deserves some major attention from those with clout.
Sam: I like the Beth Orton-style fragile vocals on this track, and I was pleased to hear that the production was sympathetic to this. The song itself is quite nice, though it doesn't really leave you feeling satisfied.
Sil: An unnerving and haunting vocal envelopes this song and it has a great lyrical delivery from the singer. But take away the Orton/Vega voice and you are left with a somewhat workmanlike structure. This girl obviously interprets this song well and may deserve some attention from A&R in development.
Luke: Nice use of breaks and loops lift this otherwise very simple track up a couple of notches. The only thing that lets it down, though, is an over-simplified melody line, which could be a bit too close to nursery rhyme territory.
Simon: This is pretty good. The female singer has a gorgeous tone to her voice that you might easily recognise again even if you'd only heard it once before. Unfortunately, she doesn't really push herself vocally or go anywhere you wouldn't expect her to go, which is a pity, and the song itself is a bit predictable. The backing track sounds okay and is reasonably played, but it's a bit like a limited-ability version of Simply Red or Sade, in that 'coffee table' playing/production kind of way. But even though the playing is a bit tired, I would like to hear more tracks by this lot, and I would look forward to seeing them play live – if only to seriously check out the lush-sounding singer.

**More from: davesturdy@hotmail.com**



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## July issue on sale 16th May

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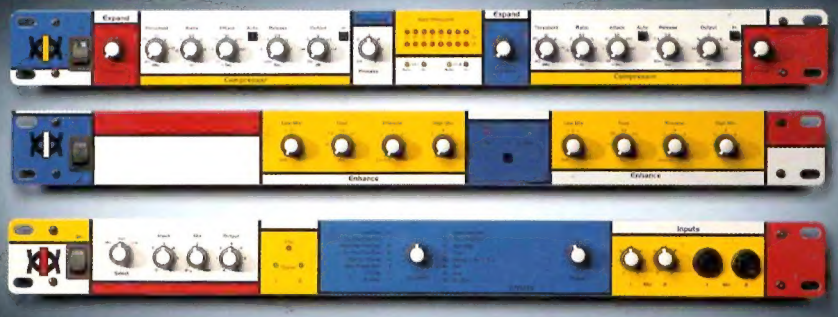

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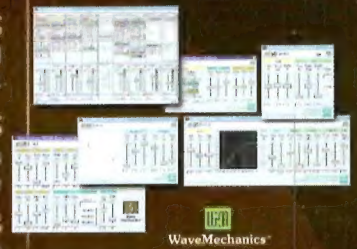


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